

April 1975

# AIRFIX magazine

FOR PLASTIC MODELLERS

monthly 22p



## in this issue

Converting the Airfix Canberra kit  
Scratch-building large scale tanks  
Peninsular War figure conversions



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Oe Hevilland Venom by Riger  
Lindsay Incl. post £1.20  
Model Review, No's 1, 2, 3 & 5  
each incl. post 60p  
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(Issues available, June & July '74,  
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M14 (Sky Type 'S' Light Grey) Royal Air Force squadron code letters 1939-45.	
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M17 Italian Air Force Squadriglia, stormo and gruppe markings 1938-43.	
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M22 U.S.A.F. markings for P-47, P-51, 1/48 scale 1941-45.	
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M32 Canadian Armed Forces R.C.A.F. lettering, rescue arrows, ejector seat, triangles, etc.	
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M34 Luftwaffe Night Fighter markings.	
M35 Luftwaffe squadron code letters and numbers. Green.	
M36 Luftwaffe Staffel and Gruppe markings. 1939-45.	
M37 Luftwaffe squadron code letters and stencil markings 1939-45.	
M38 Finnish Air Force national insignia.	
M39 Finnish Air Force unif insignia and serial numbers.	
M40 Finnish Air Force squadron codes.	
M41 Italian Co-Belligerent Air Force including — Fuselage Fasces, Roundels, Fin Flashes and Yellow squares.	
M42 Japanese Air Force Hinomaru, Propeller stripes, data plates, kill markings and centre-line markings.	
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# AIRFIX magazine

April 1975  
Volume 16 Number 8

## FOR PLASTIC MODELLERS

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### Cover Picture

M-110 self-propelled howitzer. This American vehicle, designed in 1957-8, provides heavy mobile artillery support for the British Army. It mounts an M-2A1 8" (203 mm) howitzer, carries a crew of five men, has a road speed of 56 kph and a cruising range of 725 km. A further eight crew members are carried in an Alvis Stalwart. This particular vehicle belongs to 39 Medium Regiment, Royal Artillery, and was photographed during a training exercise in the Hohne Training Area, Germany, by S/Sgt J. K. McLaughlin in May last year. An HO scale model of this SPG is available in the Minitanks range (MoD).

### Return from Balacava

Due to his wife's ill health, Sid Horton was unable to complete an article in time for this issue. However, he'll be back next month with another in his popular series of figure conversions.

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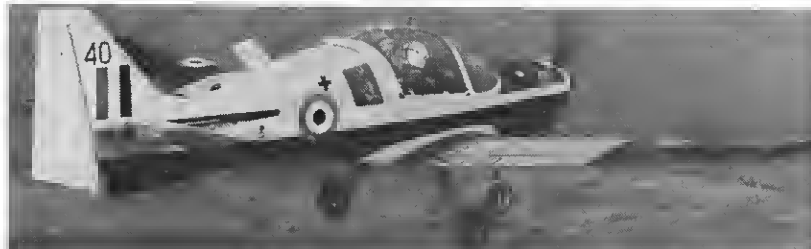




Peter F. Guiver

## in the air

Up to date with the Bulldog



WHEN, IN 1970, Beagle Aircraft Ltd succumbed to financial difficulties, the future of their promising new military trainer, the Bulldog, looked bleak despite an order for 58 for the Royal Swedish Air Force. Fortunately the design was saved from oblivion by Scottish Aviation Ltd, who took over the project and set up a new production line at their Prestwick factory. This move has certainly paid off as the order book at the time of writing stands at 260.

The original Beagle-built first prototype, which made its maiden flight on May 19 1969, was joined in 1971 by the first Scottish-built definitive aircraft, G-AXIG, which served as a pre-production prototype and demonstrator.

The first deliveries to Sweden were made in July 1971, and production then built up as further export orders were confirmed from

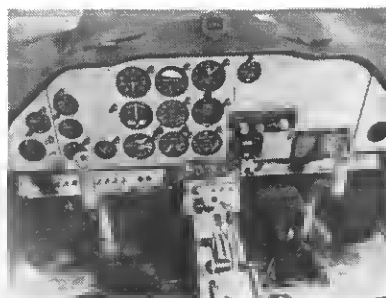
the air forces of Kenya (five), Malaysia (15), and an additional contract from Sweden for 20 Bulldogs to be used by the Royal Swedish Army. These latter aircraft can carry two wire-guided anti-tank missiles on wing-tip mountings.

Thus far, all the aircraft had been of the Series 100, but in 1972 the RAF placed an order for 132 Bulldogs, these being of the new Series 120. This version has greater structural strength to permit full aerobatics at higher weights, and can carry a wider range of instruments.

Power comes from an Avco-Lycoming IO-360-A1B6 four-cylinder engine of 200 hp, driving a Hartzell two-blade propeller of 187.9 cm/6 feet 2 inch diameter. All Bulldogs now produced are of the Series 120, at the rate of seven aircraft per month.

Following the RAF order, further sales

Above and below two views of the RAF's third production Bulldog XX515, in standard Training Command colours. Note the CFS badge aft of the roundel (MoD). This is the actual aircraft to be featured in the forthcoming Airfix kit.



Close-up of a Bulldog instrument panel (MoD).

have been made to Ghana for six Model 122s, Nigeria (20 Model 123s), and the first civil sale to the Royal Jordanian Academy of Aeronautics for five Model 125s.

Unlike the RAF aircraft, Bulldogs for export are finish painted at Prestwick prior to delivery. Due to various legal, diplomatic and insurance requirements, some of the aircraft for overseas customers have carried British civil registrations for test and ferry flights, ie Sweden, Nigeria and Jordan; these customers receiving their machines direct by air. The Malaysian and Ghanalan aircraft were sent by sea whilst the Kenyan Bulldogs were air-freighted in a Canadair CL-44 of Cargolux.

The first aircraft for the RAF, XX513, made its maiden flight on January 30 1973 and was delivered to the Aeroplane and Armament Experimental Establishment at Boscombe Down the following month for trials, being joined by XX514 in March.

Production for the RAF then gathered pace, the aircraft being flown unpainted to RAF Little Rissington. From there they were then delivered to No 5 MU Kemble for final painting, followed by despatch to the various units.

The Central Flying School at Little Rissington received a small batch of Bulldogs in April, and the first of 20 aircraft for No 2



Flying Training School at RAF Church Fenton was in use by June.

Replacing the long-serving Chipmunk, this re-equipment programme then turned to the University Air Squadrons, London UAS at RAF Abingdon being the first recipient in October, followed by Southampton UAS at Hamble in December, and Glasgow UAS at Abbotsinch in March 1974. Since then the UASs of Queens (Belfast), Manchester, Yorkshire, Northumbria, and Wales have received Bulldogs, and this will continue with the other UASs in 1975. In the second half of 1974 No 2 FTS formed an aerobatic team called 'The Bulldogs', using two aircraft.

After approximately 60 Bulldogs had been delivered via the Little Rissington-Kemble route, new RAF aircraft were flown initially to Church Fenton, thence on to Kemble for painting. However, with the recent closure of Church Fenton, new deliveries now route via RAF Leeming to Kemble, and some 90 RAF aircraft have been supplied to date. No 2 FTS Bulldogs have also moved to Leeming.

Further developments to the Bulldog design are under investigation, including the addition of four underwing hardpoints carrying total loads of up to 290 kg/640 lb. Also projected is the Bulldog Series 200 which is planned to feature a retractable undercarriage, seating for four and other refinements.

I wish to thank Mr C. Merritt of Scottish Aviation Ltd for his kind help in compiling this article.



Top Royal Malaysian Air Force Bulldog in white with dark blue cheat line and orange dayglo fin and wing tips. Fin flash is blue (front), black and yellow. National markings are yellow star on blue square with black border. Above the Kenyan Bulldogs with red and white fuselages and grey wings. Roundels are black (outer), white, red, white, green (centre). Fin flash is black (front), red, green. Below three of the Nigerian Air Force Bulldogs, which are light grey overall with red lower engine cowlings, wing tips and rudders (Scottish Aviation Ltd).



## AIRFIX NEW MODELS FILE

## ROMMEL'S HALF-TRACK

In the Western Desert battles of 1941-43 the Germans came near to victory due to the tactical skill of their commander, Field Marshall Erwin Rommel. Rommel frequently directed operations from just behind the front line, his armoured radio command car becoming a familiar sight to the German troops.

'Greif' (Strike), as he named the vehicle, was a standard SdKfz. 250/3 semi-tracked reconnaissance car.

The SdKfz.250 series of armoured vehicles was designed and built by the firm of Demag. The 250's carried a crew of six and a main armament of two heavy machine guns. With the 250/3 version, accommodation was reduced to four to make room for the radio equipment.

No less than 14 different models of the basic 250 were produced including supply and cable laying vehicles, anti-tank and self-propelled guns and observation cars. The engine had seven forward and three reverse gears giving it a respectable

cross-country speed of 37 mph.

The Airfix 'Greif' reproduces a multitude of accessories and fine detail flexible tracks.

For up-to-date news and details of Airfix models get the Airfix magazine, price 22p.

Also available are a set of detailed Airfix Books. These give all the background information to such models as the HMS Victory, Cutty Sark, Mayflower, Spitfire, Messerschmitt Bf109, P-51 Mustang and Hawker Hurricane.



**Rommel's Half-Track  
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### Technical Details

Date of origin:	1939
Make/Model:	Demag SdKfz 250/3
Engine:	6 cylinder 4.17 lit. Maybach.
Top Speed:	37 mph (cross-country)
Fuel capacity:	31 gallons.
Range:	186 miles.
Armament:	Two heavy machine guns.

## OUR HALF-TRACK IS ROMMEL'S GREIF.



## AIRFIX NEW MODELS FILE

## SHORT SKYVAN

The story of the Short Skyvan to date is one of reliability, ruggedness and steady sales. 105 Skyvans had been sold, by December 1974, to more than 35 operators and the type seems assured of further orders.

The prototype Skyvan made its first flight in January 1963. The Skyvan is purely functional in design, ugly in appearance, and hence affectionately known as the 'five ton budgie'.

Its large cabin can carry up to 19 passengers plus baggage or 5,000 lbs of freight. Olympic Airways operated two Skyvans on tourist services to and from the Greek islands. And amongst the eleven countries who use Skyvans for military purposes, the British-assisted Sultan of Oman's Air Force have put the Skyvan through its greatest test, averaging 2,000 sorties per month in temperatures of 125°F.

The Skyvan has carried loads as varied as goats and sheep, medical supplies, long-wheelbase Landrovers, and soldiers. Alternative markings are

provided for a Skyvan in the SOAF livery or Olympic Airways and Airfix have put their customary attention to detail into producing this new addition to their own model airforce.

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Also available are a set of detailed Airfix Books. These give all the background information to such models as the HMS Victory, Cutty Sark, Mayflower, Spitfire, Messerschmitt Bf109, P-51 Mustang and Hawker Hurricane.



**Short Skyvan  
72nd Scale Series 4.**

**New to the world's biggest range  
of construction kits.**

### Technical Details

Date of origin:	1963.
Engine:	Garrett Air Research 715s.h.p.
Top Speed:	201 mph.
Service Ceiling:	10,000 ft.
Range:	306 miles (with 4,000 lb payload).
Wingspan:	64 ft. 11"
Length:	40 ft. 1"
Height:	15 ft. 1"

## FIVE TON BUDGIE GOING CHEAP.





# Peninsular War figure conversions

Officer, British 95th Rifles  
by Martin Windrow and Gerry Embleton

THE ARRIVAL OF Airfix's Rifleman kit opens up many conversion possibilities, and since this unit played such a prominent part in all the operations of the Peninsular War many modellers will wish to make dioramas featuring 'unconverted' Riflemen in small groups. The optional pairs of legs in the kit, and the alternative arm positions available in other kits in the 'Collectors Series', allow a number of simple but pleasing animations.

The figure can be painted as either a private soldier or an NCO. Rank chevrons were white trimmed with black, and worn on the right upper arm only: two for a corporal, and three for a sergeant. A sergeant requires the addition of a waist sash with hanging ends, knotted on the right hip and presumably worn under the waistbelt. This can be added from blobs of sculpted putty or from thin plastic card, without difficulty. Normally infantry sergeants' sashes were crimson with a central stripe of facing; it is perhaps worth mentioning that two of the

few contemporary colour paintings of the Rifles show scarlet sashes with a black stripe, but this may be a case of artistic licence.

One figure conspicuously missing from such dioramas, however, will be the Rifle officer. But as luck would have it, a suitable figure can be produced almost entirely from the parts of the British 10th Hussar kit, with the sole addition of a modified Rifleman's shako. (Reference for the dress of officers of this corps in the period 1808-15 is sparse and contradictory, and there seems to have been a good deal of licence. The uniform described below is taken from one of only two known contemporary watercolours from life, but there is still room for argument.)

First, the shako. File off the cords, and discard (to the spares box!) the peak section. Add a small, square, folding peak from plastic card, as in the accompanying drawing. Add the badge and cockade in the normal manner. Officers' cords certainly varied, but we chose to follow the watercolour in adding green cords and tassels, as shown; they fasten at the left top of the shako, with two hanging tails.

You could try bending moulded cords from the Coldstream Guardsman kit, or from Historex spares; knowing our limitations we used thick nylon thread. Satisfactory tassels can be produced by tying a tight knot, then cutting just below it and fraying out the ends. (Since the hussar's head and headgear are moulded in one piece we used the Rifleman's head. Note that the hussar's collar is moulded in a piece with the head, and the Rifleman's isn't — so either trim the hussar's collar from his head and use it, or trim the Rifleman's collar from his jacket and use it.)

Officers were normally clean-shaven, but in the Rifles moustaches seem to have been tolerated sometimes.

The hussar's torso and arms can be used without modification, beyond filing down the dolman cuff detail — but retain the general pointed shape of the cuff. The barrel-sash should be turned into a conventional cloth waist-sash; this is simple, requiring only a few minutes' work with a rounded file to destroy the surface detail and to leave realistic 'ridges' and 'valleys'.

To simulate the tasselled 'whips' of the light infantry style sash worn by Rifle officers we cemented a single length of thick nylon thread around the waist on top of the moulded sash. This should have a small knot tied into it on the right hip or thereabouts, with two hanging tails ending in tassels, either flying loose or hooked up to the thread again in the front — the hussar kit

instructions clarify this latter effect, although the moulded whips supplied in the kit are too small. We used the cutting rather than the thrusting right arm, as more realistic in a foot figure, but a 'pointing and shouting' figure would be entirely feasible.

The legs are the main problem. The officer wears cavalry-style overalls with leather reinforcement on the inside leg and an outer side-stripe. If you want a fairly passive pose the legs from either the Rifleman, the Coldstreamer or the French Imperial Guard Grenadier would be easy to paint,



British Rifles officer's cap and sabre scabbard — colour details as described in text.

but all seem slightly smaller scale than the hussar moulding and would require some careful padding around the stomach area with body putty.

We preferred to use the hussar's legs, broken at the knee and re-set in a position feasible for a running or scrambling man. The Scots Grey legs would do as well. The exact procedure depends on the preferred animation; we tried to get the effect of a man running, the left leg bent and the foot raised to clear an obstacle. The right leg was broken by sawing a small 'V' into the inside of the knee; breaking the leg outwards (with care the two halves need not actually part); cementing firmly again at the knee with the leg absolutely straight when viewed from the front; and packing the hole, when dry, with putty.

The left leg was broken backwards into a bent position by sawing a large 'V' out of the back of the knee; bending the leg until it broke; cementing in position; and building up the kneecap, when dry, with putty. The packing should be allowed to set overnight before careful filing into shape.

The rest of the figure can be made up exactly as the hussar instructions, with the exception of the equipment. The waist-belt and sabre scabbard are as per the hussar kit, but the sabretache and its slings are omitted. Only a single pouch-belt is worn, and this should be modified slightly. A lion-head mask was worn by Rifle officers as a plate on the pouch-belt, above the heart; a small chain ran from this to a whistle fitted lower down the belt, in front of the lower right ribs, the chain hanging in a loop. For

these fittings we used the pouch-plate from a Coldstream kit for the mask, and a rectangular sliver of plastic card for the whistle, joining the two with a short length of silver-painted thread for the chain.

Colours should be as follows: **Shako** — matt black with gloss black peak and cockade, silver buglehorn and button, green cords and tuft. **Dolman** — dark green with black collar and cuffs, black frogging on chest and piping on back, three rows silver buttons. A line of black piping follows the edge of the cuff — straight on the inside, pointed on the outside — about 1 mm above the cuff, developing into a simple trefoil knot above the point. **Pelisse** — dark green with black frogging on chest and piping on back and around cuff vents, three rows of silver buttons, brown fur trim. **Overalls** — grey with black side-stripes, leather cuffs, leather reinforcement up inside of legs and in crutch (see note below). **Waist-sash** — crimson. **Waist-belt, pouch-belt, pouch** — gloss black with silver fittings. **Sabre** — gold hilt, black grip, silver blade. **Scabbard, slings** — gloss black, gold fittings (see sketch).

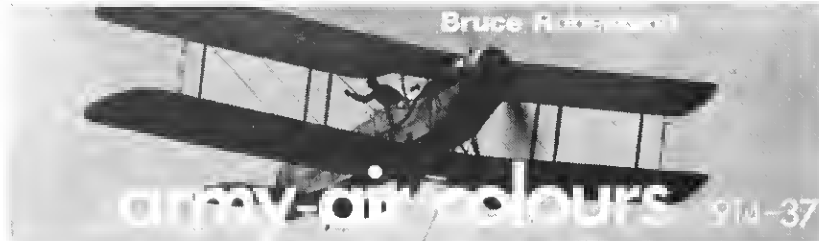
(Note: the leather reinforcement on the inside leg of the overalls often had a fancy 'vandyked' or 'wolf-tooth' edge, but a straight edge is equally accurate. We find a good leather effect can be achieved by painting with matt brown, and overpainting when dry with Burnt Sienna drawing ink. Practice this first on an old model — the ink doesn't behave like paint and tends to puddle, and this technique takes trouble. The results are worth the effort. The same technique is effective for painting the wooden parts of muskets.)

It goes without saying that the figure — if finished in an athletic pose like this — should be mounted on a base with suitable scenery, including a rock or tree trunk for Hizzoner to jump over! A pleasant diorama could be made up with this figure and two or three Rifleman on a small scenic base, advancing and firing in heavy cover, with perhaps a French corpse for a stage prop? Further details of rifle units will be found in *Military Dress of the Peninsular War* under Fig 22, Plate 5; Fig 29, Plate 6; and Fig 74, Plate 15.



April 1975

AIRFIX magazine



## Part 5 — adapting the Bristol Fighter

IN THE IMMEDIATE post-war years, as units were run down to peace-time establishments, there were several occasions when the RAF were called in to assist in operations by the Army.

In 1919 there were RE8s co-operating with the Expeditionary Force in North Russia, in India BEs of Nos 31 and 114 Squadrons were engaged upon army co-operation work and bombing raids in a war with Afghanistan, and in Iraq there were operations with RE8s against a rebel Arab chief on the Lower Euphrates end with Kurds in Southern Kurdistan.

To replace the RE8s and AWFK8s used during the war, a new standard army co-operation aircraft was required. Before the war had ended Nos 9 and 12 Squadrons had received the Bristol Fighter, then the standard fighter reconnaissance aircraft, for army co-operation duties. No 20 Squadron, which had flown Bristol Fighters since 1917, re-assembled in India and used this fighter for army co-operation work during the protracted Waziristan punitive operations in India 1920-21.

### Standard Army co-op type

A decision to maintain the Bristol Fighter in the army co-operation role during the mid-Twenties was influenced largely by the stocks available. A 1922 stocktaking showed 300 in service units, 227 in training units and over 500 in store — more than of any other aircraft type at that time. They were finished in khaki-green or chocolate-brown doped of the late war years, but from 1923 the silvery finish of aluminium dope appertained and became standard

from 1925 onwards.

A new production standard, designated Mk II, was set by J6586, newly-built with desert equipment and a tropical engine cooling system. Wartime aircraft with serials in the earlier D, E, F and H ranges, built 1917-19 (see *Fighting Colours* Part 11, May 1973) that had survived were withdrawn from store and modified to the new standard, while J6587-6800 were built new at Bristol, followed by J7616-7699 built up from spares.

At home only Nos 2 and 4 Squadrons, re-equipped with Bristol Fighters, had been retained in the Army co-op role, but in 1924 this force was doubled by raising two new squadrons with First World War Corps squadron numbers. On April 1 the Signal Co-operation Flight with four Bristol Fighters at Kenley was re-designated 'A' Flight of No 13 (Army Co-operation) Squadron; to which 'B' and 'C' Flights were added on May 31 and October 1 respectively that same year. Similarly on April 1, the so-called Co-operation Squadron of the School of Army Co-operation was expanded on a three flight basis as No 16 (Army Co-operation) Squadron.

These four squadrons, Nos 2, 4, 13 and 16 were to remain for years the home army co-operation squadrons. By May 1925 the deployment of Bristol Fighters at home and overseas, in first line units, was as follows:

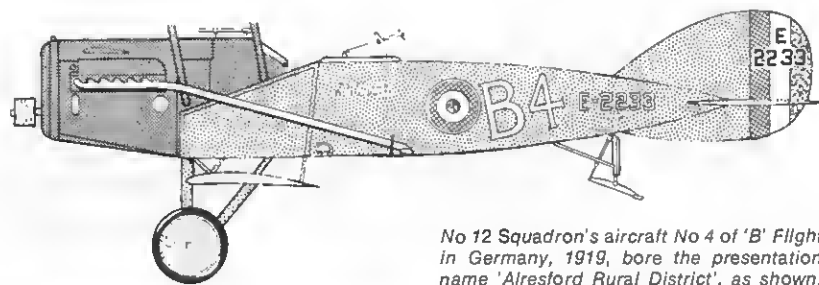
Squadron	Strength	Location
No 2 (AC)	3 Flts	Manston, Kent
No 4 (AC)	3 Flts	Farnborough, Hants

The Bristol Fighter Mk IV prototype, a modified wartime-built Bristol Fighter. This view well shows the message pick-up hook (MoD H1694).



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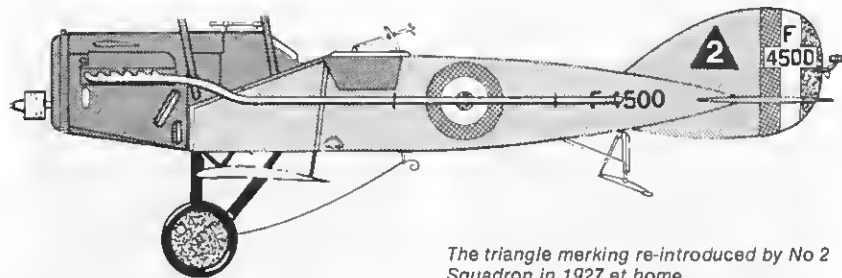




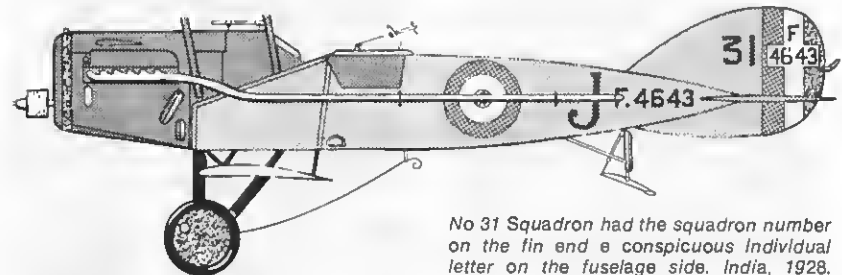
No 12 Squadron's aircraft No 4 of 'B' Flight in Germany, 1919, bore the presentation name 'Alresford Rural District', as shown, on the fuselage side below the gunner's cockpit.

"ALRESFORD  
RURAL DISTRICT"

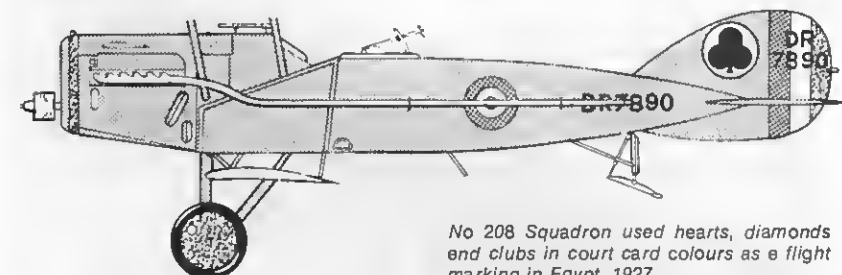
Drawings by  
Peter G. Cooksley



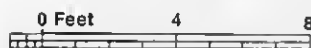
The triangle marking re-introduced by No 2 Squadron in 1927 at home.



No 31 Squadron had the squadron number on the fin and a conspicuous individual letter on the fuselage side, India, 1928.



No 208 Squadron used hearts, diamonds and clubs in court card colours as a flight marking in Egypt, 1927.



	Red		Black		Khaki-green		Natural wood
	White		Aluminium dope		Clear dope		Polished brass
	Blue		Mid-grey				

Squadron	Strength	Location
No 5 (AC)	3 Flts	Kohat, India
No 6 (AC)	3 Flts	Mosul, Iraq
No 13 (AC)	3 Flts	Andover, Hants
No 14 (AC)	2 Flts	Remleh, Palestine
No 16 (AC)	3 Flts	Old Sarum, Wilts
No 20 (AC)	3 Flts	Peshawar, India
No 24 (Comm)	1 Flt	Kenley, Surrey
No 28 (AC)	3 Flts	Quetta, India
No 31 (AC)	3 Flts	Ambala, India
No 208 (AC)	3 Flts	Moascar, Ismailia
Aden Flt	1 Flt	Aden
Night Flying Flt	1/2 Flt	Blagdon Hill, Kent
*Now in Pakistan.		

On April 12 1926, No 22 Group was formed with Headquarters at Farnborough, and embraced the home squadrons (Nos 2, 4, 13 and 16), and the Schools of Photography, Army Co-operation and Balloon Training.

So satisfactory did the Bristol Fighters prove that a strengthened Mk III version was built instead of a new type for the late-Twenties. These were J8242-8291, built in 1926, followed by J8429-8458 fitted with dual control as Mk III(DC) to equip Flying Training Schools with advanced trainers. In 1928 the Mk IIIs were further strengthened, fitted with enlarged fins and Handley Page wing slots, to a new Mk IV standard.

### Distinguishing markings

From December 1924, following the issue of an Air Ministry order on flight markings, wheel discs had been painted red, yellow or blue for A, B or C Flights respectively, but no overall marking to distinguish army co-operation aircraft was used, but most squadrons had their particular ways.

No 2 Squadron identified its aircraft with two red fuselage bands aft of the roundel and used, from December 1924, the flight colour between the two bands. However, on January 31 1927, Sqn Ldr Sowrey DFC AFC, who had recently taken over the squadron, put up a request to Sir John Salmond, as C-in-C Air Defence Great Britain, for permission to revert to the wartime triangle first displayed on their BE2cs in 1916.

Permission given the following March led Sqn Ldr John C. Slessor MC to request that his No 4 Squadron be permitted to display their BE2c wartime marking of a black band around the fuselage of their Bristols, just forward of the roundel. This modest request was granted in November 1927. No 16 Squadron, apparently without consulting higher command, used a black band around the rear fuselage of their Bristols.

In India no set marking schemes prevailed. Nos 5 and 31 Squadrons for a period painted their unit number on their fins, and No 20 employed a black band, but there was

Continued on page 464

AIRFIX magazine



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WEL 9 Rifle Brigade Private  
WEL 10 Scots Greys Private

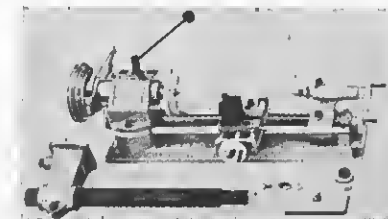
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7 Officer foraging cap, pointing  
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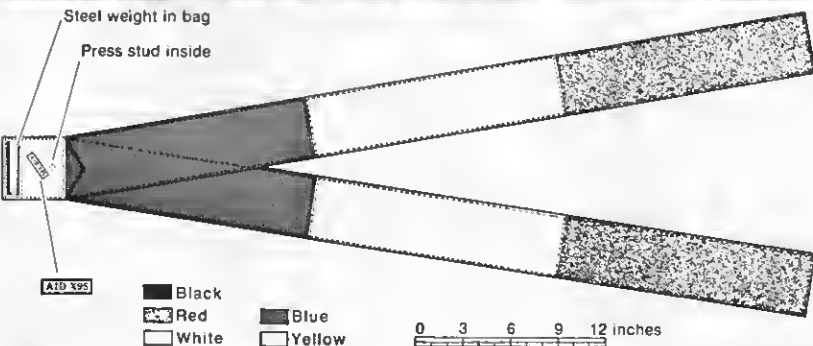
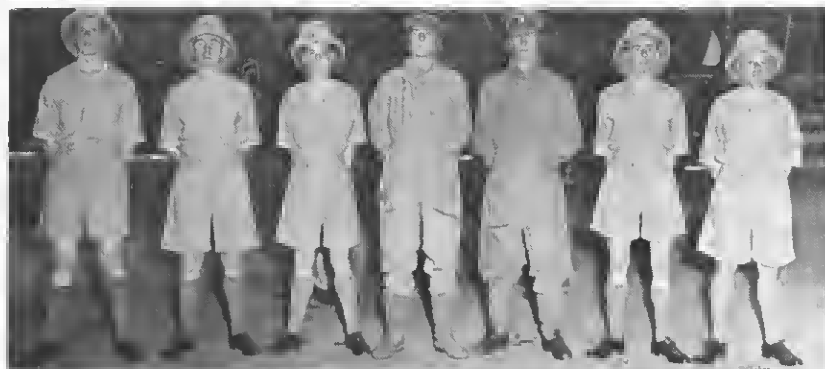
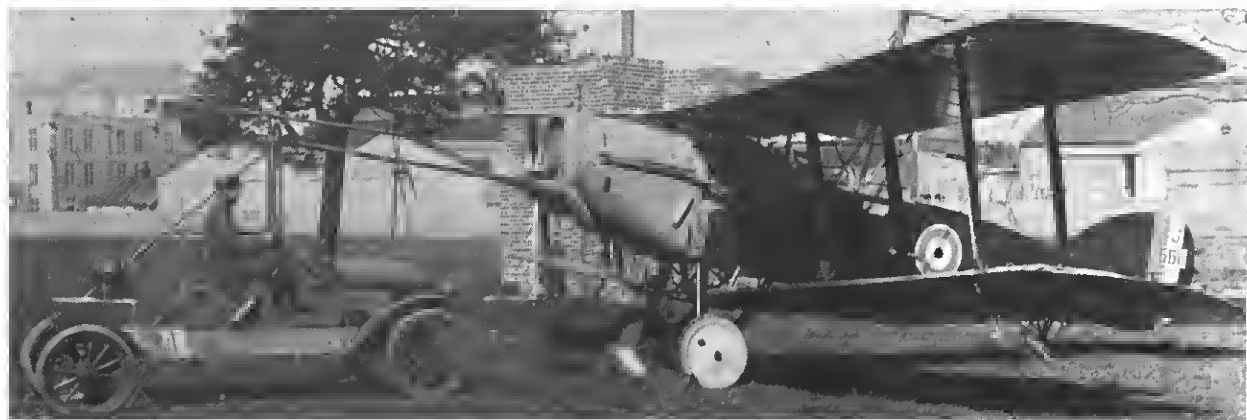
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**Above** a tableau of the time. One of the post-war Bristol Fighters in wartime finish being started by a Hucks Starter, which was based on a Ford Model T chassis (modelling details in February 1973 issue) (MoD H67). **Left** not the cast of BBC TV's 'It Ain't 'arf Hot Mum' but a tableau presented in the '60s to show air and ground crew dress of the '20s (MoD). **Below left** a late production Bristol Fighter with VIP rear cockpit into which the Prince of Wales (later King Edward VIII and Duke of Windsor) is seen climbing (port side). This machine bears the red/black/red chevron on the fin which distinguished No 24 (Communication) Squadron. Photo taken at Mousehold, Norwich, 1928.

little consistency over the long period Bristol Fighters were operated. Practically all, however, bore distinguishing individual letters, allotted within each squadron.

Until March 17 1927, only Avro 504K/N aircraft had serials marked under the wings, but from that date it applied to all RAF aircraft and No 16 Squadron in complying had to give up their practice of marking '16' in black under the wings. Similarly, in accordance with general marking instructions, the Bristol Fighters remaining in service in the August-October 1930 period had the order of their rudder stripes changed from blue, white and red from the rudder post, to the reverse way.

While W/T signals were used and R/T was being introduced, a large amount of communication work depended on the physical writing and passing of messages. These messages were collected by the relatively primitive method of hanging them in a bag on a rope strung across two poles to raise it off the ground, so that it could be picked up by a hook lowered from beneath a Bristol Fighter.

The observer replied to the ground by dropping messages in a message bag. These bags had functionally colourful streamers to ensure that they were seen dropping and could be picked out on the ground. The message bag illustrated has been drawn from the example actually dropped from Bristol Fighter F4623 of No 16 Squadron operating at the 1924 Air Pageant at Hendon for the School of Army Co-operation, crewed by Flying Officer Weite and LAC L. Anderton.

# Scratch-building large-scale tanks

Using plastic card and other materials. First instalment from Jeremy Broughton

THIS IS THE first of a short series of articles in which I will be describing in detail the construction of models of several of the tanks used by the British Army at the beginning of the Second World War. In fact most of the vehicles modelled will be from the Western Desert; all are to 1:35 scale and are built from scratch. I shall try to go through the construction of the various models describing each step in detail, but as many techniques will be used in each case the coverage of the first model has been extended and split into two sections.

This first model is of the Cruiser Tank Mark IVa. This tank was the last of the A13 series, whose design stemmed from the novel American Christie T3 Medium Tank of 1932; this vehicle featured for the first time large road wheels capable of considerable vertical travel. This asset, together with a powerful aero-engine, permitted very high speeds both on the road and across-country. These features were included in the first of the A13 series, the Cruiser Tank Mk III, but much re-design was necessary to produce a reliable fighting vehicle.

The first development was the Cruiser Tank Mark IV; this had extra armour, most noticeably in V-shaped shields attached to sides and rear of the turret. Subsequently the original coaxial Vickers machine-gun was replaced by the more modern Besa mg, to give the Mark IVa.

One of the results of the lack of military finance between the World Wars was the great haste with which the development of new Cruiser and Infantry tanks had to be carried out in 1936-39; this led to a lack of mechanical reliability, the A13's most serious shortcoming. Otherwise it was a successful design, well-armed and well-armoured by comparison with competing foreign designs, and certainly more mobile.

Developed at the same time as the A13

series were two other Cruiser tank designs, the Marks I and II. All these early Cruisers first saw action in France in May 1940 where, owing to hasty preparation and British inexperience in the handling of large armoured forces, they suffered badly. Their main theatre of action was, however, the Western Desert: the Cruiser Tank Mark IVa in particular saw successful service from O'Connor's defeat of the Italians in the winter of 1940-41 to the battles of Operation Crusader a year later.

## The preparation for the model

I think that this phase is often curtailed by the modeller in his desire to produce tangible results, but if it is integrated into the final stages of the previous model no time will be lost.

When I decided to build this model it was first necessary to assess the information available, covering both the basic vehicle and camouflage schemes and markings applied in the field. The former class includes plans, published dimensions, photographs of the tank showing obscure detail, and also in this case the possibility of a visit to the RAC Tank Museum at Bovington Camp. Here a slightly unusual Mark IV is preserved. In the latter class are contemporary photographs, available either in books or on view in the Imperial War Museum. This information must then be critically assessed: for instance, do the published dimensions match the scaled-up dimensions taken from the plan? Are there sufficient photographs of a single tank to enable the complete markings and camouflage of a real vehicle to be reproduced, or will a little artistic licence be necessary? Does the photographed vehicle match the plans, and if not can the missing detail be reproduced? One point that must be considered is the difficulty of knowing exactly



**Above** pair of A13s in the desert, the tank in front being the subject of this month's model (T.15229). Note water cans on rear end commander's steel helmet slung from turret slide (IWM). **Below** 1:35 scale models of Cruiser Tank Mk IVa (left), the subject modelled in this and next month's articles, and (right) a Cruiser Tank Mk I which will be covered later.

what dimension a quoted length refers to: for instance, does the 'Width' include sand-shields or the 'Height' aerial bases or spot-lights?

The accuracy of the plans used is of prime importance. Many published plans contain errors or inconsistencies of varying degree but once they have been recognised allowance may be made. Since the original vehicles have long since been destroyed, this synthesis of information from all possible sources is the best that can be done.

The vehicle that I chose to model is a troop leader's tank on patrol in the Western Desert in the spring of 1941. This choice has one great advantage in that the bulk of the Cruiser Tanks Mk I, II and IV in the desert



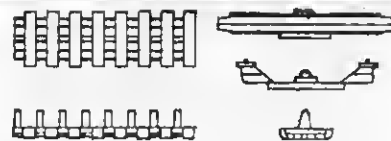


This photo of the finished Cruiser Tank Mk IV clearly shows how time has 'sagged' the tracks without any artificial help. Note also camouflage pattern (to be illustrated more fully next month), manner in which driver's hatches open, and 'steel helmets' slung for effect from turret side.

had clearly defined, carefully applied camouflage schemes, and many tanks would have been painted identically with the subject of my model. Consequently it is possible to infer the exact camouflage of this tank, although there is only one photograph of it, from photographs of identically painted vehicles.

The term 'camouflage' may seem misleading: the aim was to distract the aim of the enemy gunner rather than conceal the tank from him. The camouflage consists of straight-edged triangles converging to a point at the rear of the tank, presumably to cause the aiming point to be too far to the rear. Apart from the WD number the tank bears no marking, so the unit cannot be identified.

We now come to the more detailed planning of the model. The precise vehicle that is to be modelled has been chosen, and the final form of the model must now be settled. The first decision is whether or not the interior is to be visible through open hatches. If it is then the structure of hull and turret must largely match that of the prototype, but otherwise strengthening bulkheads can be incorporated. I decided to leave all hatches open and so the internal structure was decided for me; in the hull the only bulkhead separates the engine and fighting compartments and there is no partition separating the driver's cab and the fighting compartment. Fortunately the A13 had a double side hull wall, with the suspension components between; this allowed a system of stiffeners to be incorporated to give strength to the walls and rigidity to the basic hull box. The turret has to be made without any internal system of supports, and so has to be made with the individual plates butting together at their edges. The additional armour plates will then be mounted on frames attached to the 'inner' turret, exactly as on the original. Once the basic design of the model has been decided it is possible to proceed with the actual construction.



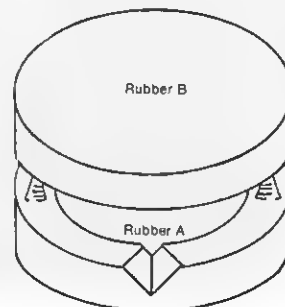
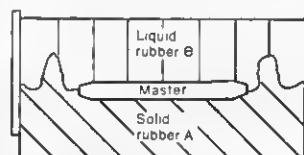
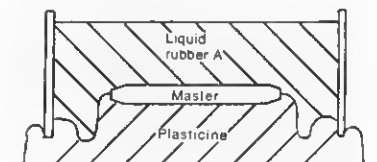
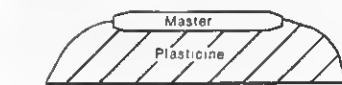
Above three-view plan to 1:35 scale of a track section of suitable length for moulding, together with 1:35 scale sections through a road (top) and sprocket (bottom) wheel. Full-face plans of the wheels are included in the plans on page 468. Right stages in making a mould. Below photo showing the two mould halves for the sprocket (on left) with master, and track (on right) with the longer master embedded.



#### Track and wheels

The description of the construction of the model begins with the suspension; this may seem a strange place to start, but the construction of 24 assorted wheels and some 28 inches of track is a major undertaking. The method I will describe substantially reduces the labour required, and ensures a uniform standard in the finished product.

The method consists of making a single example of the required item and then reproducing this 'master' as many times as desired using a rubber mould. Suppose that the road wheels are to be produced; first the master of a single road wheel, as perfect as possible, is made from laminations of sheet plastic discs, with the hub detail on one face and a plain disc on the other. Eventu-



AIRFIX magazine

ally pairs of wheels will be glued back-to-back and the inner 'hubs' mounted on the axle-stubs.

The master is now half-embedded in Plasticine and a convenient cylinder, sufficiently large to surround the master leaving a margin of about 1/2 inch, is pressed into the Plasticine. Two depressions should now be made in the Plasticine, with say, the end of a paintbrush handle; these will later form pegs that will locate the two halves of the mould.

We are now ready to begin the actual moulding process. This requires the use of a special moulding rubber; the type that I now use is 'Silastic 3110' made by the American firm of Dow Corning and supplied in this country by Alec Tiranti Ltd of 70 High Street, Theale, Berks. The rubber is a thick white liquid and is supplied in 1 lb containers; the rubber solidifies when a catalyst, 'Catalyst 1', is added. The pale blue catalyst comes in a tube and when added to the rubber in the proportions 1:10 the rubber solidifies in 24 hours. Earlier types of moulding rubber required great precision in the ratio of catalyst to rubber but the current variety is very tolerant.

The rubber in its drum is thoroughly stirred and a suitable quantity is then transferred to the mixing vessel; for the road wheel about 1 1/2 teaspoonsful should be sufficient. Catalyst is then mixed into the rubber and stirred until evenly dispersed; the mixture should be left for a moment to allow trapped air bubbles to escape. The rubber is now slowly dribbled into the container surrounding the master, the object being to ensure that no air bubbles attach to the master when it is covered by the rubber. The rubber is now left to set; when this is accomplished the mould is inverted, the Plasticine entirely removed and the exposed surface of rubber thinly smeared with Vaseline. More rubber is now mixed and poured into the container; once more the rubber is allowed to set.

When the rubber is perfectly hard the container is removed, the two halves of the mould gently separated and the master removed from whichever piece of rubber it adheres to. The coating of Vaseline ensures that the liquid rubber does not adhere to the solidified rubber, and it may be desirable to smear the container in which the mould is formed if the mould will not come easily from the container.

A channel must now be cut in the mould to allow liquid plastic to end air out; I cut matching triangular wedges from each half-mould to give an internal hole about 1/8 inch square. The external hole should be larger, so that a funnel is formed.

When the two mould-halves are pressed together, guided by the pegs formed earlier, the hollow formed should be an exact replica of the master; it is important that sufficient rubber be used at each stage for the two half-moulds to be sufficiently robust not to deform when pressed together. When large moulds are made, perhaps of a 1:25 scale figure, it may be necessary to encase the half-moulds in rigid boxes, but the

Continued on page 468

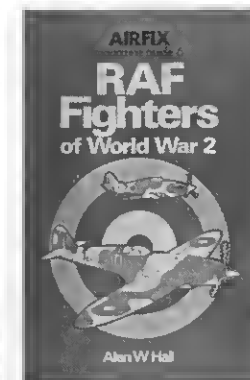
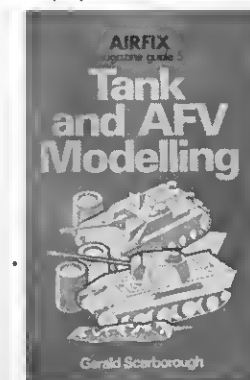
April 1975

Two more top modelling guides . . .

## No 5 Tank and AFV Modelling

Gerald Scarborough

A natural sequel to Military Modelling (No 3 in the series) and of interest to anyone working in the popular 1:76 scale. After explaining the basics of scratch-building the author goes on to describe a number of practical modelling projects which are divided into two sections. The first is on light AFVs including the M1 Combat Car, Covenant tank and Australian Sentinel tank, and the second on 'heavies' like the Matilda 1, American M2A1 and Russian T-35. Each conversion is fully illustrated with photos and scale drawings. The final chapter covers glass fibre and vac-formed kits, and gives display ideas.



## No 6 RAF Fighters of World War 2

Alan W. Hall

From the famous Spitfire and Hurricane to the less well-known types, this handy reference guide for modellers and aviation enthusiasts traces the service life of every fighter to see action with the RAF during World War 2, and some that did not. It is a mine of information on the development, operations, dimensions and performance of the Mosquito, Beaufighter, Blenheim, Mustang and many others, and is of particular interest to younger modellers as it contains many contemporary photos. Both books have 64 pages, 8 1/2" x 5 1/2" (216 x 138 mm), and are fully illustrated. £1.20 net each (£1.33 by post)

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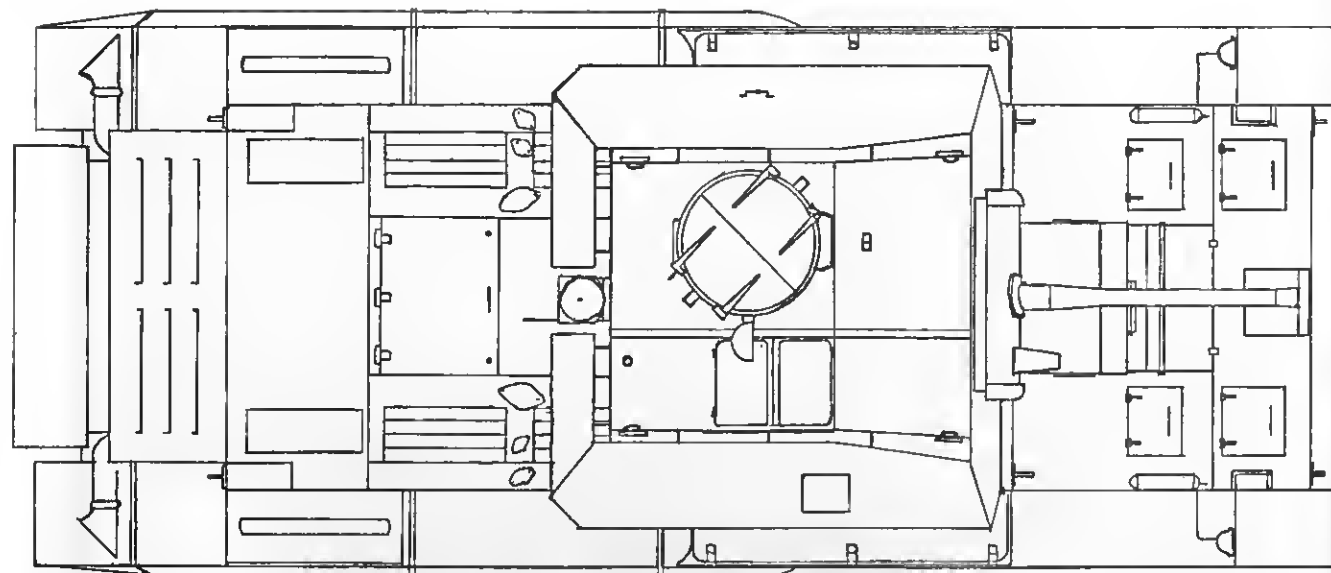
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moulds which are necessary for this model are sufficiently small that, provided enough rubber is used, they will be self-supporting.

We now come to the actual process of casting, the ultimate test of the mould just made. Various materials could be used for this, such as lead or Araldite, but I use a clear liquid plastic called 'Plasticraft', manufactured by Turner Research Ltd and primarily intended for the casting of jewellery and paperweights. Again, a small quantity of hardener is added to the liquid plastic to cause it to set. The two half-moulds, lying flat, are filled with the mixture and then fitted together: I use bent paper clips to keep the halves together. More plastic is poured into the funnel to fill the mould, and also to allow for slight contraction while the plastic is setting.

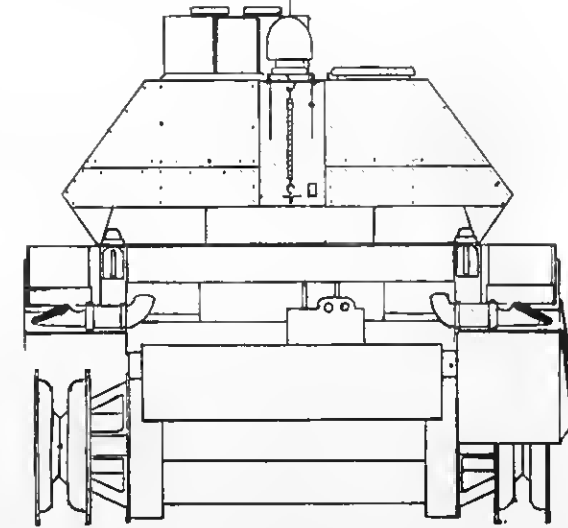
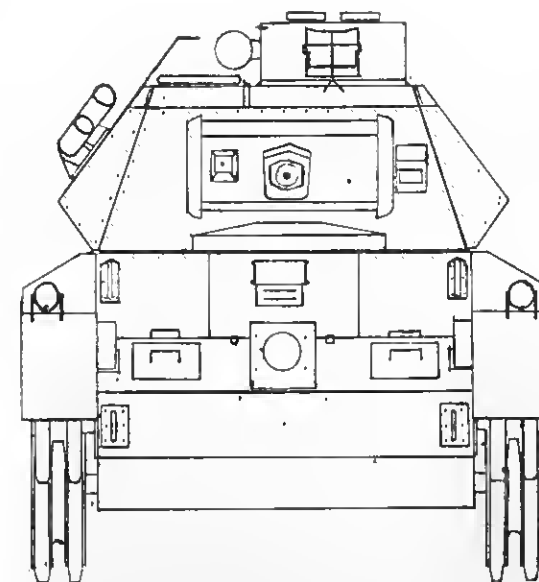
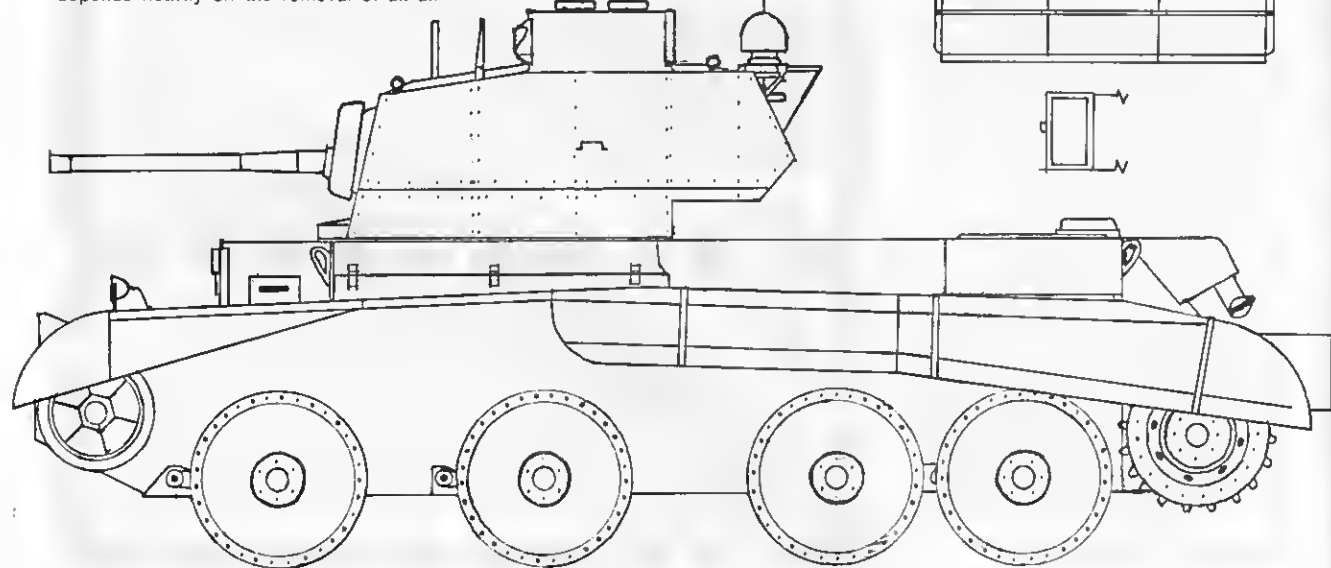
The success of the finished article depends heavily on the removal of all air

bubbles from the liquid plastic. The plastic should have set sufficiently hard in 12 hours for the mould halves to be separated and the casting removed. In fact, the casting may well take some days to set thoroughly and this is another reason for beginning the casting of wheels and track at an early stage: if a casting were to be mounted on the model before it had thoroughly set it would subsequently deform under stress. Consequently, I like to leave all castings for several days before use: this avoids the misfortune of oval wheels!

If the shape of the master is complex, as is inevitably the case with lengths of track, then even with great care a third to a half of the castings may have to be rejected. The



1:35 scale plans for Cruiser Mk IVa. Detail views at left show smoke bomb discharger and mounting, and rear track for petrol and water cans, omitted from main drawings for clarity.



rejection rate can be reduced by removing with a pin all bubbles trapped in the crevices of the mould before uniting the mould-halves. Nonetheless, even a simple mould will generally produce failures: at such times it is worth considering the repetitive labour saved in comparison with the straightforward, manual method of producing these items!

It is worth emphasising that the casting can be no better than the mould and the mould can be no better than the master: if all goes well you will have a perfect replica of the master, so the production of the master should be as painstaking as possible. Also, there is little that can be done to improve a mould once the rubber has set, it is sometimes possible to fill the holes caused by air bubbles but generally if the mould is not perfect it should be scrapped. However, once you have a satisfactory mould as many reproductions of the original master as are needed can be produced with little extra effort.

I have included drawings of the wheels and track to indicate how the masters are made. All were built up from sheet plastic: the most difficult part is producing really round wheels, and I suppose that without special tools a genuinely round wheel is impossible. A very good approximation to a truly circular wheel can be made by scribing a circle of the required radius on the plastic sheet with a pair of dividers, roughly cutting out to the scribed line and then filing down, using a circle drawn on a sheet of paper as a guide.

A series of shallow holes must be drilled on either side of the road wheel tyre. The rivets on the sprocket wheel were made from short lengths of stretched sprue, but the bolts on the road wheel hub were formed by impressing the inside face of the relevant disc. I decided to cast the sprocket and idler wheels, but as only four of each are required it would probably be almost as quick to build each wheel 'by hand'; however, both sprocket and idler were used on

many later British tanks and the moulds may prove useful again.

I have found that the plastic castings may be cemented together, or to sheet plastic, very satisfactorily using one of the '5 minute' epoxy cements now available. When cementing to sheet plastic the surface of the sheet must be thoroughly roughened to ensure a good bond.

When sufficient good quality wheel castings have been obtained they should be epoxied together in pairs. Discs of 60 thou sheet plastic are then glued to the inner hub of each road and idler wheel-pair: these are the axles by which these wheels will be attached to the hull. Discs of 20 thou sheet are similarly glued to the inner hub of each sprocket wheel-pair, by which these will be

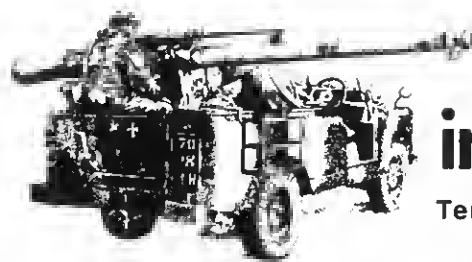
mounted on their axles. The wheels are then painted a sand colour, with black tyres and with the inner faces of the sprockets a dirty rust: they are then put on one side until required for mounting on the hull.

A very satisfactory method of producing the various lamps that appear on the model is to cast them in clear plastic and to paint the 'reflectors' silver. This requires two moulds, one for the central headlamp and cupola spotlight, the other for the two side-lights on the trackguards.

This completes the preliminary stages in the construction of this model; in next month's article I will describe the later stages, so that a complete model of this very interesting and little-known tank may be built. □

Maintenance work being undertaken on a Cruiser Mk IVa in the desert. Note sun topee, camouflage netting and camouflage pattern (IWM).





## in the field

Terry Gander and Chris Foss

105 mm Light Gun now in quantity production



FOR MANY YEARS the Light Regiments of the Royal Artillery have been equipped with the Italian 105 mm Model 56 Peck Howitzer. This weapon has, however, been in service for well over ten years, and, when used operationally in South Arabia and North Borneo, a number of weaknesses showed up. Therefore in 1965 a requirement was drawn up for a new 105 mm gun and design work commenced in 1966.

The weapon was designed by the Royal Armament Research and Development Establishment at Fort Halstead, Kent, with the assistance of a number of other establishments. A number of prototypes were built and these were subjected to rigorous trials under a variety of conditions in many parts of the world. These trials proved successful and in 1971 the 105 mm Light Gun was accepted for use with the Royal Artillery.

The first production gun was officially handed over on October 25 1974, at a ceremony at the Royal Ordnance Factory at Nottingham, Leeds, where the weapon is now in quantity production. The ROF at Nottingham makes a wide range of weapons for both the Army and Navy, including the 120 mm gun of the Chieftain MBT.

The first battery will form this year at the School of Artillery at Larkhill, Wiltshire, and it is expected that this new gun will win a large number of export orders as many countries have a requirement for a weapon of this type.

The most significant point about the new weapon is its range of 17,000 m (over ten miles), which compares with the range of just over 10,000 m for the Italian 105 mm weapon. In addition, a complete range of effective ammunition has been developed for the 105 mm Light Gun which includes a high explosive, high explosive squash head for use against armoured vehicles, smoke, illuminating, target indicating and under development is a special anti-personnel round.

When being towed the barrel is to the rear of the weapon, ie towards the towing vehicle. This is achieved by jacking up the weapon (the jack is stowed on the trail when not required), removing the quick release wheel and traverse gear pin, swinging the gun through 180 degrees, clamping the barrel to the trail and finally replacing the wheel. This takes only one minute with the crew of six men.

The weapon has an elevation from -5½ degrees to +70 degrees and a traverse of 5½ degrees left and right. It may, however, have to be used in the anti-tank role, and for this reason a firing platform is carried under the trails. This was used by the famous 25 pdr Field Gun over 30 years ago and proved its worth during the Second World War. When the 105 mm Light Gun's wheels are on the firing platform it can be quickly traversed through 360 degrees to meet any new threat.

Continued on page 472

Loading, aiming and firing a 105 mm Light Gun. Full details on building a 1:76 scale model of this gun and its Land Rover towing vehicle appeared in Airfix Magazine Annual for modellers 4.

AIRFIX magazine



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No shield is fitted as this would increase the weight of the weapon. The 105 mm can be carried in a single load by a Puma helicopter. If, however, only Wessex helicopters are available, the weapon has to be broken down into two loads. It can be reassembled with simple tools in less than 30 minutes.

When the 105 mm Gun enters service this year it will be towed by the new One Ton Land Rover. This is also now in production and has been developed to a British Army requirement for a 1 Tonne vehicle with added capacity of towing a 1½ Ton powered trailer. This vehicle is powered by the successful lightweight 3.5 litre Rover petrol engine which is similar to the civilian model but has a reduced compression ratio to enable it to operate on low octane fuels. This engine develops 156 hp at 5,000 rpm and gives the vehicle a top road speed of 120 kph. It is not, however, recommended that the new 105 mm Light Gun be towed at this speed!

This vehicle can carry the complete crew of the weapon together with stores and a supply of ammunition. It can be airlifted by Wessex and Puma helicopters. Other roles are envisaged for the 1 Tonne Land Rover including an anti-tank model armed with six Swingfire ATGWs.

### A most unusual kit

RECENTLY, THERE came our way a most unusual plastic construction kit that we think is of particular interest to anyone with leanings towards things military, and thus we have included it in this column rather than the review page. The kit in question is a 1:1 replica of a German 88 mm artillery round, and it is complete in every detail.

This venture has been undertaken by Lemarka Reproductions, a British concern, under the aegis of Les Thurston who is a well-known collector and authority on artillery ammunition.

The round selected for the kit is the 8.8 cm Panzergrate Patrone mit BdZ, an armour piercing round. Fully assembled the round stands an imposing 33.6 inches high (about 85 cm) and when painted it makes a most interesting and unusual addition to any modeller's collection.

The kit comes in five pieces, and is made from strong, high quality plastic. Some care will be needed to conceal the joint between the two halves of the cartridge case but the modeller is helped by the very good standard of mouldings used — top marks to the makers of the original moulds.

The case and projectile are both embossed with the original markings, and additional stencillings can be added using a very comprehensive information leaflet supplied with the kit — assembly instructions are also included. When assembled the projectile can be removed for separate display if required.

Cost of this kit is £3.95 plus 35p post and packing, and it can be ordered from Lemarka Reproductions, 155A Castle Road, Bedford, MK40 3RT, England. It is hoped that this venture will be expanded to include other rounds of historical interest. □

# Napoleonic wargaming

A points system for choosing balanced armies described by Bruce Quarrie

THIS ARTICLE, and the one to follow next month, have been written in response to the numerous requests for information I have received from readers of my book *Airfix Magazine Guide 4: Napoleonic Wargaming* (Patrick Stephens Ltd, £1.20).

The problem most people seem to encounter is, given the different points values for fire factor etc allocated to each troop type, how do you devise a game in which the opposing forces are balanced? A simple battalion of one nationality's line infantry per battalion of your opponent's does not work satisfactorily since their fighting qualities may be significantly different.

The system I use is as follows: allocate a points value per figure made up as follows: Fire Factor + Confused Melee Factor + Morale Factor — Control Factor. Thus, for example, a French Fusilier has a value of  $1+1+7-3$ , which equals 6; a British Line infantryman a value of  $2+2+7-2=9$ , and so on.

Now, taking the French Line Battalion as a typical example, in the post-1808 period

6 Line Infantry Battalions at 188 points per battalion	= 1,128
1 Light Infantry Battalion at 192 points	= 192
1 Dragoon Regiment of 20 figures at 42 points each	= 840
1 Cuirassier Regiment of 20 figures at 51 points each	= 1,020
1 Hussar Regiment of 20 figures at 20 points each	= 400
2 8 pdr batteries (8 guns plus 3 figures) at 228 points	= 456
1 4 pdr battery (6 guns plus 2 figures) at 92 points	= 92
Total points value of combined force	= 3,128

this consists of 24 figures representing four companies of Fusiliers (16 figures) plus one company each of Grenadiers and Voltigeurs (4 figures per company). The 16 Fusiliers are worth a total of  $16 \times 6 = 96$  points, the 4 Grenadiers are worth  $(2+3+9-1) \times 4 = 52$  points, and the 4 Voltigeurs worth  $(2+2+8-2) \times 4 = 40$  points. So,  $96+52+40 = 188$  points for a French Line Battalion.

Cavalry points values are worked out in much the same way, except that both Impact and Confused Melee Factors are added in, and the value per figure is multiplied by its 'head count' factor (ie light cavalry  $\times 2$ , heavy cavalry  $\times 3$ ). Thus, for example, a Russian Dragoon is worth  $0+3+4+8-2 = 13$ , multiplied by the head count factor of 3, = 39 points per figure. A squadron of four Dragoon figures is thus worth a total of 156 points, a Regiment of five squadrons (20 figures) 780 points.

It is thus immediately obvious that cavalry are much more 'expensive' than infantry, which will inevitably help to keep down their numbers in proportion to the infantry. Remember, in Napoleonic times, 25 per cent cavalry to 75 per cent infantry and artillery was fairly normal, and except in a force specially allocated for a specific mission,

the ratio rarely greater than 1:3.

Now the artillery, and here one has to be fairly brutal in allocating points values or wily wargamers will choose armies consisting of great masses of artillery with which they can decimate their opponent before he gets a chance to move! So let us say that a 4 pdr gun is worth 12 points, a 6 pdr 18, 8 pdr or 5.5 in howitzer 24, 9 pdr or 6 in howitzer 27, and 12 pdr or 8 in howitzer 36 points. Thus a battery of six 8 pdrs and two 6 in howitzers, the typical French organisation, is worth  $6 \times 24 + 2 \times 27 = 144 + 54 = 198$  points.

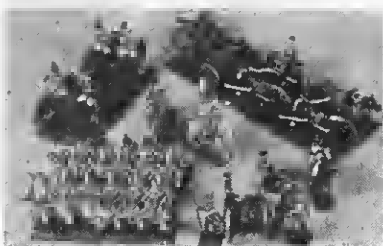
Add to this the points values of the gunners (calculated as for infantry): this gives 198 plus three gunner figures at 10 points each, total 228 points for a French line battery plus crew.

Working from this system, any wargamer can now calculate the points values of all his batteries, squadrons and battalions. Now let's add them up, and for an example here I will give the composition of a small French wargames army which represents a balanced sort of Corps in miniature.

You can now say to your opponent, be his army Austrian, British, Prussian or Russian, 'OK, match that'. It is then his task to calculate a combined arms force, using approximately the same ratios of infantry: cavalry: artillery, whose points total value is 3,128. You should be a little flexible about this — it may not be possible to achieve an exact match, and a few points either side are not really going to affect the game.

Next month I shall deal with adaptations of the rules for solo wargamers. □

Typical infantry battalion, cuirassier squadron, unlimbered and limbered guns, with officers.



AIRFIX magazine

# Canberra conversions

Bryan Philpott







A HALIFAX B 111 of 158 Squadron based at Lissett, Yorkshire, was christened 'Friday the Thirteenth', and had various symbols that superstition claims as being unlucky, painted on it. Far from bringing the crews who flew it the ill fortune that it mocked, the aircraft went on to complete 128 sorties, and could, so it was claimed by one crew, find its own way back from any target.

Superstition was no doubt far from the mind of English Electric's Chief Test Pilot Roland Beamont, when he lifted the prototype Canberra VN799, off the runway at Warton for its maiden flight on Friday May 13 1949. As with 158 Squadron's Halifax, Friday the 13th proved lucky, for nearly 26 years after the initial flight the Canberra is still in service and has behind it a record of which its designers and manufacturers can be justly proud. A record that includes the setting-up of 22 world records between 1951 and 1958, 13 of which still stand, export to 15 countries earning over £90m for this country, and the first post-war designed British aircraft to be built under licence in America for the USAF. A total of 1,376 Canberras were built, of which 450 were manufactured under licence in the USA and Australia.

Designed as a high-speed two-crew bomber to Air Ministry Specification B.3/45, the Canberra has proved versatile in many roles other than its originally intended one. Due to the absence of the projected radar bomb-sight, it was decided to add a third crew member and only the first four pro-

totypes, designated Canberra B1, were completed as two-crew aircraft.

The side-by-side seating in the B1 gave way to a seat on the port side and two seats for the navigators behind this in the B2. The solid nose of the original prototypes was replaced by a transparent cone which had an optically flat panel for the bomb-aimer, who reached the bombing position by crawling from his position behind the pilot. The first B2, VX165, flew on April 23 1950 and was followed by the first production aircraft, WD929, six months later.

In May 1951, just two years after the prototype's first flight, 101 Squadron at Binbrook became the first Royal Air Force Bomber Command squadron to be equipped with jet-bombers, thus starting a new era in the history of the Service.

A complete breakdown of the various Canberra types was given in *Airfix Magazine* October 1973 and the aircraft has been well covered in various other publications, so there is adequate material available to enable those who feel so inclined, to add a multitude of variants of this successful British design to their collections.

The four versions chosen for this article vary in skill level and are all based on the Airfix kit. Other versions using the Frog B(1)8 as a basis can be completed in a similar way, so the avid conversion enthusiast has the raw material to produce all existing Canberra types.

Although Frog issued a PR3 kit some 20 years ago — this is now a collector's item —

Previous page 360 Squadron Canberra T17 at Cottessmore (MoD). Above T4 prototype clearly showing second clear view panel on starboard side (BAC).

apart from an odd scale B57 released by Revell some years ago, this fine aeroplane has been somewhat neglected by the kit manufacturers, but this negligence was put right during the last two years when first Frog with their B(1)8 and then Airfix with their B6 answered the plaintive pleas of the plastic modelling fraternity.

The wait has been worthwhile for the advancement in plastic model technology since the original Frog offering has enabled Airfix to produce a superbly detailed kit even though the nose contours leave a little to be desired as far as the B6 version is concerned. This apparent shortcoming of the Airfix offering does not affect the models chosen, for all of them have the offending nose removed and replaced, as in the full-size aircraft, with alternative shapes that considerably change the outline of this part of the aircraft.

As with many of the conversion articles that appear in this magazine, the author can only relate the methods and parts he used, these should be taken only as a guide for there are many ways of tackling any problem and arriving at the same result. Each of the four will be described separately although some of the required modifications are common to all of them. The easiest is the T4 so we shall start with this version.

## Canberra T4

The T4 was developed from the B2 to meet the requirements of Specification T2/49 which called for an operational trainer with side-by-side seating and dual controls for the pilot and student. The navigator's position was retained on the port side aft of the pupil.

The prototype, WN467, flew for the first time on June 6 1952, and a total of 75 were built by the English Electric Company. Subsequently several B2s were converted and these can be identified from the original 75 T4s as they have only one clear vision panel in the canopy. The subject of the conversion is one of a batch of 25 serials WT475-WT492, originally built as T4s.

The first step is to build-up the floor at the front of part 7 so that it is the same level across the width of the fuselage. The starboard navigator's seat, part 1, is modified to fit alongside the pilot's seat, part 5, and at the same time these are moved outwards towards the cockpit walls. This must be done carefully and it will be found necessary to slightly reduce the heights of the seats or they will foul the canopy when this is fitted. The bulkhead carrying the instrument panel, part 20, has the existing cut-out filled with a piece of plastic card and a second instrument panel is fitted in front of the new starboard seat. An additional control column is added on the starboard side and the bomb-sight, parts 12, 13 & 14 are dispensed with.

The rest of the fuselage assembly follows the kit instructions but with all models I found it advantageous to add lead fishing weights to the navigator's compartment and front section of the bomb-bay before finally cementing the two halves together. All models require a considerable amount of weight, even those with the extended nose cones, so it is best to be safe and add perhaps a little too much when it is still possible to do so.

The nose cone, part 40, is cemented in place in the normal way but can also be filled with lead before it is placed in position. When this has set cover the whole of the transparent area with Green Stuff or body putty making sure that the join line where it meets the fuselage is well covered. When the filler has set sand it smooth to follow the contours of the fuselage making sure that all traces of the join vanish.

During these filling operations fill the hole in the port side where the kit pitot head, part 41, fits, as on the T4 a new pitot head is fashioned from stretched sprue and cemented into a hole drilled into the nose cone where shown on the drawing.

A fuel vent mast is fitted to all models on the port side just to the right (viewed from the tail) of the rear tail bumper. This is made from sprue or Slaters rod filed flat and inserted in a hole which should be drilled for the purpose. This addition is the same for all four conversions so will not be mentioned in detail again. The position of it is clearly shown on the drawings and photographs.

The T4 uses a single breech starter for its Avon 101 engines and the turbo-starter exhausts do not radiate in a geometric pat-

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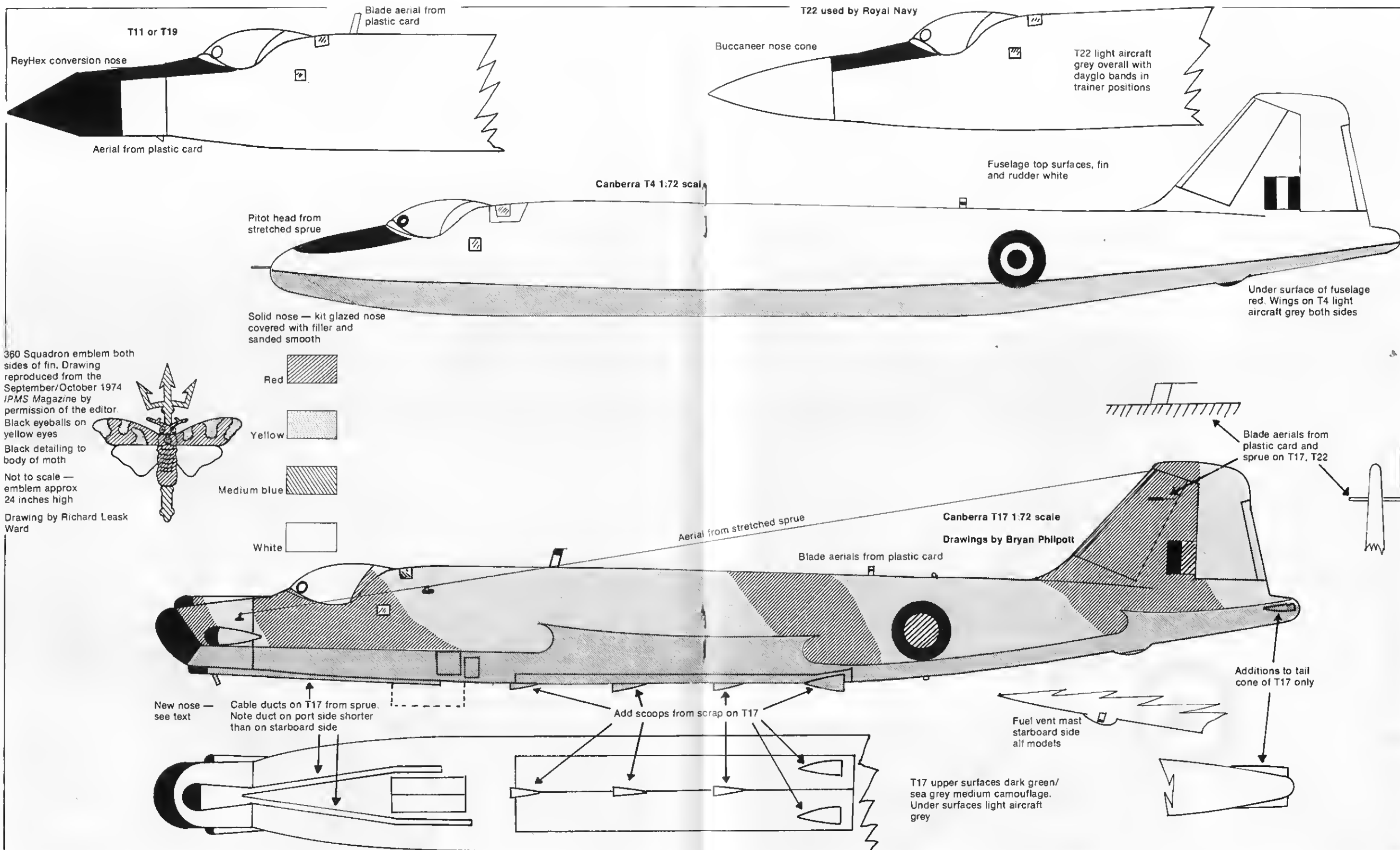
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- 6. General Custer
- 7. Captain Tom Custer
- 8. Lt. W. W. Cooke
- 9. 1st Sergeant
- 10. Dead Trooper
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- 13. Guns, Arrows, Flags etc.
- 14. Wounded Trooper with horse
- 15. Trooper sheltering behind horse
- 16. Trooper firing over downed horse
- 17. Trooper loading gun behind dead horse

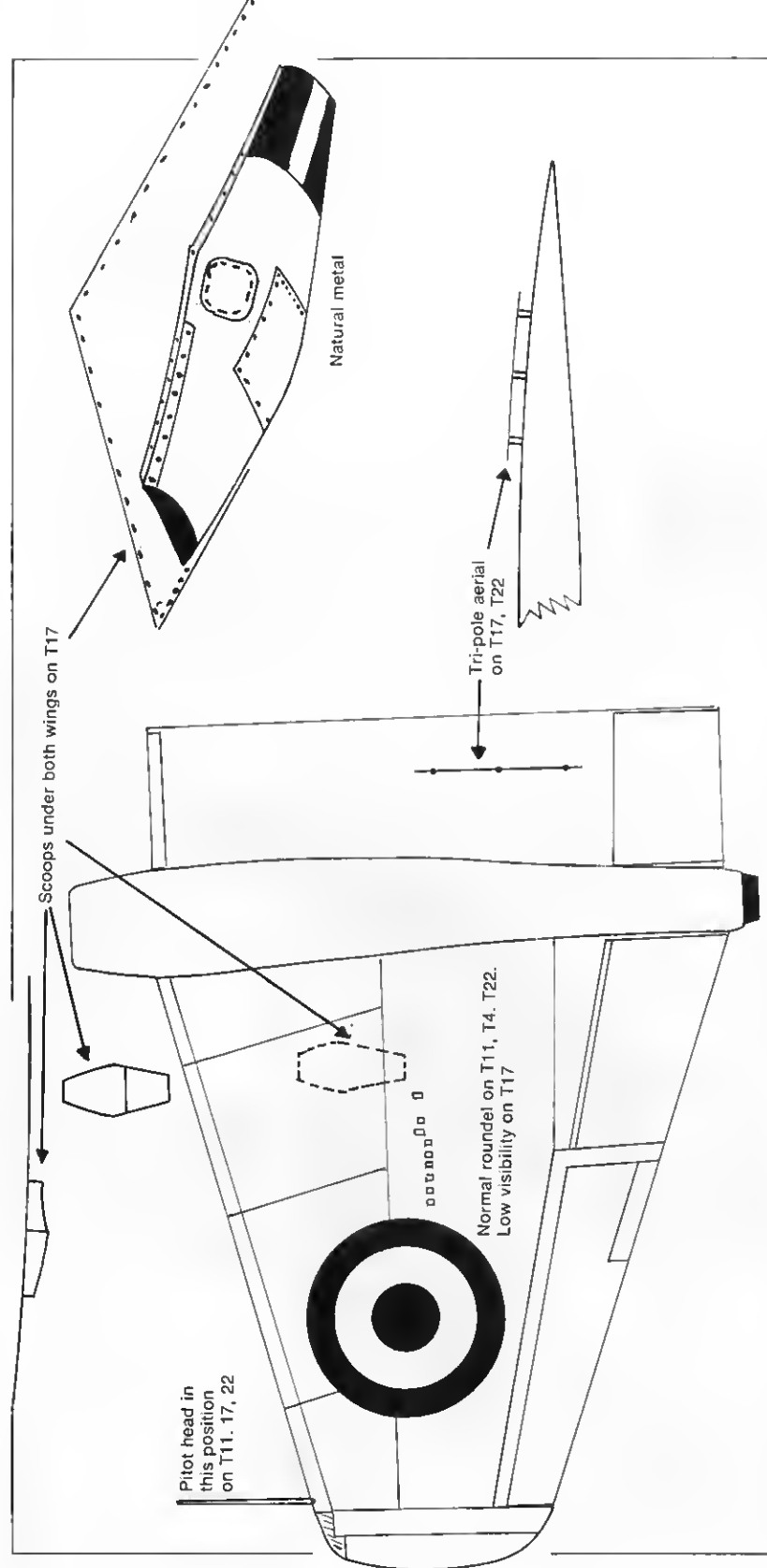
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tern from the starter cone. Modify parts 47 and 51 to show this by cutting off the raised ribs and replacing them with two pieces of stretched sprue fitted horizontally in line with the wing leading edges, ie across the engine diameter. The starter cone is shortened and has the point at the front slightly flattened.

If an originally built T4 is being modelled the additional clear vision panel must be added to the cockpit canopy, part 39. The easiest way to do this is to cut a circle from 10 thou plastic card or writing paper, using the one moulded to the canopy as a prototype, and fix this in position on the starboard side of the canopy.

The rest of the model is then assembled as per the kit instructions omitting the underwing stores. The tip tanks can be fitted but those in the kit are fractionally too long and should have 8 mm cut from their centre-sections, the two halves being rejoined and sanded smooth before attaching to the model.

The variety of finishes available for any Canberra model is such that personal preference must be the rule of the day. The model shown was painted in the new RAF trainer scheme of red/white fuselage and fin/rudder, with light grey wings and tailplanes. The machine shown in the model photographs is with 231 OCU and the markings depicted are those that will be available on a new Modeldecalsheet due for release later this year. This aircraft, WT488, is a T4 that was built as such and therefore must have the additional clear vision panel. The walkways and stencil markings on the wings are from black Letraset strips and the aircraft has a semi-gloss finish. A good colour photograph of a T4 in the new scheme appears in the Ian Allan book *Jet Bomber Flypast*.

In my opinion the Airfix Canberra stands a little too high on its undercarriage so I reduced the main oleos by 1/8 inch and achieved what I consider to be a more characteristic sit on the model. This, of course, applies to all models.

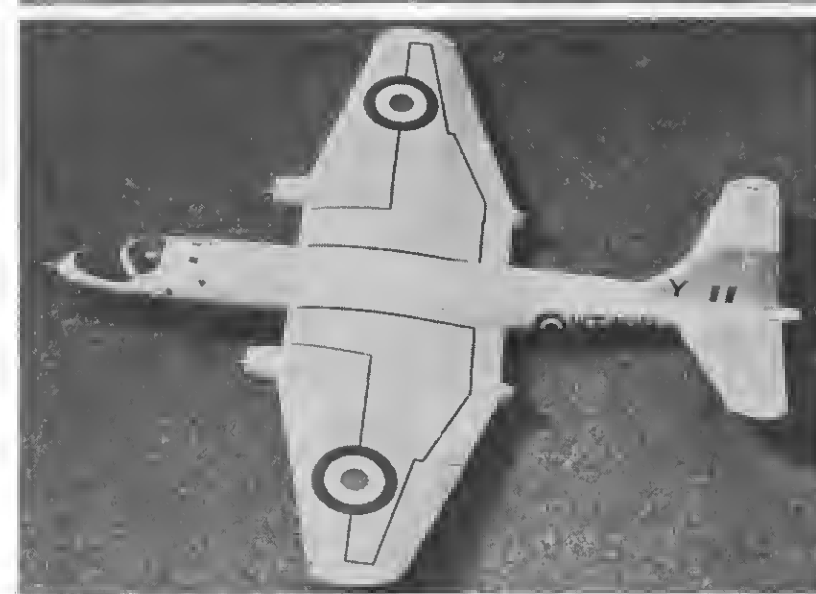
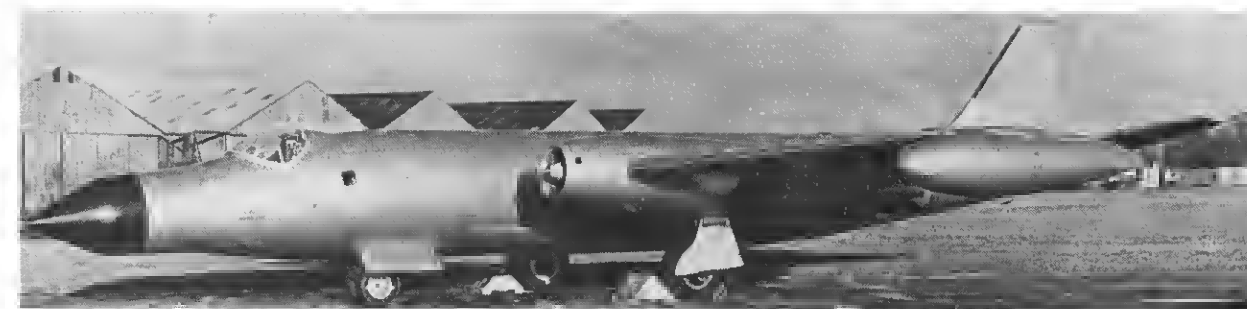
#### Canberra T11

The T11 is a Canberra fitted with AI (Airborne Interception) radar in a new nose cone. Ten were converted by Boulton Paul from B2s and the prototype flew on March 29 1958. The aircraft equipped 228 OCU for the training of Javelin crews. Two similar conversions were supplied to the Royal Swedish Air Force where they were designated Tp 52, and these would give an attractive alternative colour scheme. The T19 was also the same basic shape as the T11 but was fitted with different internal radar equipment.

This conversion is fairly simple as a newcomer to the scene of aircraft conversion kits, ReyHex Mouldings of Swindon, have recently released a complete new moulded nose cone.

Either the ReyHex conversion or a new nose carved from balsa wood is fitted to the standard kit fuselage which is modified to accept it by removing the forward part of the nose on the panel line moulded just forward of the cockpit. This line is moulded at the correct bulkhead position and angle

AIRFIX magazine



Top Canberra T11 in natural metal finish (BAC). Second T4 WH848 'E' of 231 OCU at Cottesmore (R. L. Ward). Above author's model of T4 WT488 'Y'. Below author's model of T11 in 85 Squadron markings.



where the full-size change took place so by using it as a cutting guide, the correct slightly nose-down attitude of the original is captured.

The moulding is in clear polystyrene and providing the kit fuselage is cut accurately no filling is required. I found it best to cover the new nose with a thin layer of Green Stuff carefully sanding this into the existing fuselage contours. Once again the fuselage pitot head is not used, this time being repositioned on the port wing-tip.

The model was finished natural metal overall with a light grey aerial panel on the fin, and a Stoppel black/red transfer sheet was used to give the chequer markings of 85 Squadron who also used this variant of the Canberra. There are numerous schemes in which the model can be finished including the standard RAF camouflage as displayed on the aircraft of 100 Squadron based at West Raynham.

Engine modifications, and the addition of the fuel vent are as for the T4.

#### Canberra T17

This model is perhaps one of the most ugly but at the same time attractive variants, with its bulbous nose and various protrusions heaving a somewhat sinister fascination. The aircraft is an Electronic Counter Measures (ECM) machine operated by 360 Squadron and as much of it is still secret details are not that easy to come by.

The conversion is mainly confined to the fuselage and there is a considerable amount of work involved, some of it being a little tricky for the newcomer to the conversion scene.

Start by cutting off the nose portion of the kit on a vertical line just forward of the locating ribs for part 20. A balsa plug is then inserted and when this is set firmly in position it is carved to the shape shown on the drawing.

Another method I discovered quite by accident, illustrates the immense value of the spares box. I had recently been working on some Lancaster conversions in which the models did not require their mid-upper turrets, and whilst waiting for the balsa block to set on the T17 I spent a few moments going through the box only to discover the discarded Lanc turrets. The shape looked about right and a quick check against another Canberra kit showed that they could be used. So I started another T17 this time using the Lanc mid-upper turret moulding as the basis for the bulbous nose. The gun slots have to be filled and the locating rim at the rear of the turret removed, but





Above Canberra T17. Note underwing scoop and stencil details on nose (BAC). Left close-up of nose of T17 WK111 'B' of 360 Squadron at RAF Cottesmore (R. L. Ward). Below author's model of T17 WK111 'B'. Facing page, top the old 360 Squadron marking of a lightning flash through the number, as seen on T17 WD955 'O' at the Canberra Meet at Cottesmore. Below the new 360 Squadron marking on T17 WJ633 'F'. Note also aerial on fin above emblem (R. L. Ward).

the end result was a much neater nose than could be achieved with balsa, and all plastic to boot! I am not for one moment suggesting that a Lancaster kit is purchased just to obtain the mid-upper turret, but the example does serve to show just how the most unlikely parts will come in useful one day if your particular forte happens to be converting plastic kits to other marks or variants.

Whichever method is used, once the new nose has been shaped and fitted the four blisters can be added. For these I used bomb bodies for the side two end parts of drop tanks for the ones top and bottom. I cannot advise the reader which kits these came from but it is a safe bet that any self-respecting spares box will contain any quantity of such objects that will be suitable.

The bulge under the nose is truncated at the rear from which extend two (presumably) cable ducts. These were made from Slaters rod which was cemented to the fuselage in the correct position with liquid cement, then built up into a square cross-section with Green Stuff.

It should be carefully noted that the duct on the starboard side ends at the rear of the nose wheel undercarriage door, while that on the port side is shorter, ending about half-way along the door.

On the centre-line of the bomb bay there are three blisters at equidistant spacing and at the rear of the doors, set just below the opening hinge line, are two large scoops that face towards the rear. All five pieces again came from bomb bodies and drop



tanks but can also be made from sprue and filler. Bomb bodies also provide the two blisters at the tail and the small blade aerial that protrudes from the undernose blister is fashioned from 20 thou plastic card. Another blade aerial is fitted to the top of the fuselage aft of the cockpit and this was

also made from plastic card with stretched sprue dipoles fitted to its top.

The T17 has a variety of aerals sprouting from its fuselage and also two on the fin. The latter ere made from 20 thou plastic card sanded to aerofoil section and fitted in place where two engraved removable



panels are shown on the fin. These two aerals also have stretched sprue omni-poles at their extremities.

The aerial masts that carry the wire aerial to the fin are fitted to the nose just above the port blister and below to the rear of the cockpit, and the aerial attached to these is from stretched sprue. This aerial is best fitted as the last operation of the whole conversion otherwise it will be a continuing casualty during the handling of the model.

The only other additions are the two scoops fitted under the wings, the shape and positions being shown in the drawings and photographs. These were made from laminated plastic card carved and sanded to shape, but no doubt drop tanks or bomb bodies, if there are any left in the spares box, could be adapted.

The model was finished as WK111 'B' of 360 Squadron but the choice is again a wide one. Particular care must be taken when selecting which aircraft to model as there is no set pattern of finish as far as the radar nose and blisters are concerned. Some aircraft have the nose and all blisters black, others have the nose grey and blisters black, yet others have a combination of black and grey blisters and black or grey nose cones. At the Canberra Meet at Cottesmore last year the following 360 Squadron aircraft were present: WD955 'O'; WJ633 'F'; WH665 'J'; WK111 'B'; WJ565 'C'; WK102 'A'; none of these followed any identical pattern as far as nose finishes were concerned so the choice is wide open.

One aircraft at Cottesmore, WJ633 'F',

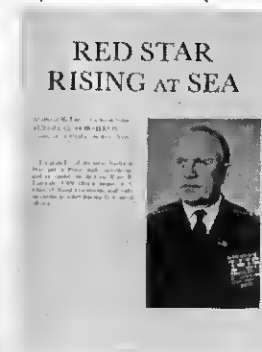
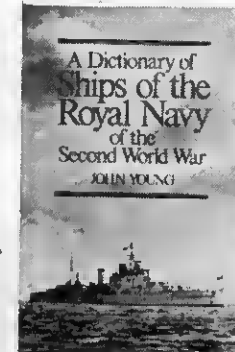
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had the new 360 Squadron badge on its fin, this is the moth emblem reproduced on the drawing page. This is a species *Melese Laodamia Druce*, which is a moth equipped with a receiver which picks up the high frequency signals from the AI Radar of bats. To the moth, bats are hostile, so it transmits a signal on the same frequency used by the bat thus effectively jamming the hostile creatures' search radar and avoiding its own destruction. Thus the moth was in the Electronic Counter Measures business long before man thought of it, and it makes an appropriate emblem for the squadron that is engaged in the same line of business.

The old 360 emblem of the number superimposed on a streak of lightning will eventually be replaced by the new one, but check the model you have chosen first before applying it. It is also as well to check the type of national markings applied for some of the T17s at Cottesmore had the red/white/blue markings and not the low visibility markings as shown on WK111. If you chose the latter style of marking the fuselage roundels can be obtained from one of the Modeldecals sheets which include them for the Hunter, Lightning and Phantom, but the top wing markings will have to be hand-painted unless a set of the correct size become available on a specialist sheet of markings.

The T17 is finished in the standard light grey undersurfaces with dark sea grey/dark green camouflage top surfaces. Finish is semi-gloss.

## Canberra T22

The Royal Navy have used several versions of the Canberra including the U10 radio controlled drone used by 728 Squadron Fleet Air Arm at Hal Far, Malta, for trials with the Seaslug ship-to-air missile. The latest, and possibly last version — although only time will tell just how many variations of this unique aeroplane are possible — is the T22 which again is used by the Royal Navy. This aircraft has a Buccaneer nose cone fitted to the nose and is used in a similar role to that of the T11 by FRADTU at Yeovilton.

The conversion is similar to that carried out on the full-size aircraft and is achieved by marrying a Buccaneer nose to the Airfix kit. Once again it is not suggested that a



Top author's model of T22 WH801 '850', a Yeovilton based aircraft. Above close-up of underwing scoop on a T17. Right close-up of underside of T17 model nose. Foot of page T22 showing extensive markings beneath canopy (BAC).



separate Buccaneer is purchased specifically for this purpose, but it is certainly one way of doing the conversion. Another alternative is to use one of the spare nose



cones supplied in the Airfix F4 Phantom II kit. This component is almost the right shape and can easily be modified to the correct outline by deft use of a craft knife and wet and dry paper. The original Airfix Blackburn NA2 (forerunner of the Buccaneer) or the Frog and Matchbox Buccaneer kits can be robbed of the vital component. Work is required on all of these to make them fit the Canberra kit but it is not as tedious as carving a wooden block to the correct shape.

Aerials are added to both sides of the fin in the same positions and styles as for the T17 and there is also a similar blade aerial aft of the cockpit. A tri-pole aerial is fitted to the T17 and T22 inboard of the port engine on the top surface of the wing. This is made by drilling three equal spaced holes and cementing three masts to these, they can be made from sprue, plastic card, Slaters rod filed flat or fins from rockets from the invaluable spares box. Make sure that the heights of each mast vary so that when the aerial, which is stretched sprue, is fitted to the top of them, it follows the curve of the wing surface.

This aircraft is finished in light aircraft grey overall with dayglo bands in the trainer positions. Roundels are from the Airfix kit and the serial end 'ROYAL NAVY' is from Letraset.

## General

All four conversions are fitted with a variety of whip and blade aerials that can be made from sprue or plastic card and fitted where shown in the photographs and drawings. Most of the markings can be obtained from the Airfix kit but Modeldecals sheets 25 and 26 feature two Canberras and these are a worthwhile source of stencil markings etc. Care must be taken when fitting some of the ancillary markings such as the ejector seat warning triangles, fire extinguisher and escape axe markings, as these are by no means common in shape or position on different Canberras or indeed, those of the same mark.

Letraset and Blick Dryprint lettering is a useful source for serials and codes as well as the black walkway lines on the top surfaces of wings.

As mentioned at the start of this article, there are many other Canberra conversions that can be made from the Airfix kit including the Martin B57 and its derivatives, if the editor is willing some of these will be detailed in a further article later this year (OK! Ed).

Information is available on the Canberra from a variety of sources and it has been featured in articles and pictorial features by most of the aviation magazines and periodicals. In addition to the *Airfix Magazine* article already mentioned, useful data can also be found in Profile No 54, *The World's Fighting Planes* by William Green, *Flight International* for May 8 1969, *Aircraft Illustrated* May 1972, M.A.P. Planpack 2706 and *IPMS Magazine* for July/August 1974.

I am indebted to the British Aircraft Corporation of Preston and Richard Leask Ward for their invaluable help in the preparation of this article.



# renaissance warfare

George Gush

## Part 23 — the Muscovites (continued from last month)

AFTER THE DISASTROUS 'Time of Troubles' in the early 17th Century, Russia began to recover under her first Romanoff Tsars, and in the 1630s a new paid force began to be raised, consisting of four 'German' Infantry regiments (in fact also containing English, Dutch and Scots mercenaries), and six 'Soldiers' regiments of Russian infantry trained and equipped on the same lines, and with foreign officers. The basic regimental organisation was intended to be of 960 musketeers and 640 pikemen, in eight companies.

The 'German' regiments were dressed and equipped in Western fashion as shown, their dress being colourful and non-uniform; the Russian ones were armed the same but dressed similarly to the Streltsi. Later on the foreign troops tended to be replaced by new Russian units like the two 'Vibornie' (= chosen or elite) Moscow Infantry regiments (1642).

Also under Michael Romanoff (1613-45) foreign or foreign-style cavalry units were introduced. These consisted of 'Reiters' wearing helmet and corselet and armed with a sword, two pistols and a carbine; dragoons with long musket, sword and short lance; 'Hussars' or Lancers in imitation of the Poles, with lance and sabre; and 'Cossacks' armed like the Reiters. The traditional cavalry still predominated, in fact in the 1632 campaign against Poland there were only 7,000 of all the new troops as against 33,000 of the traditional types.

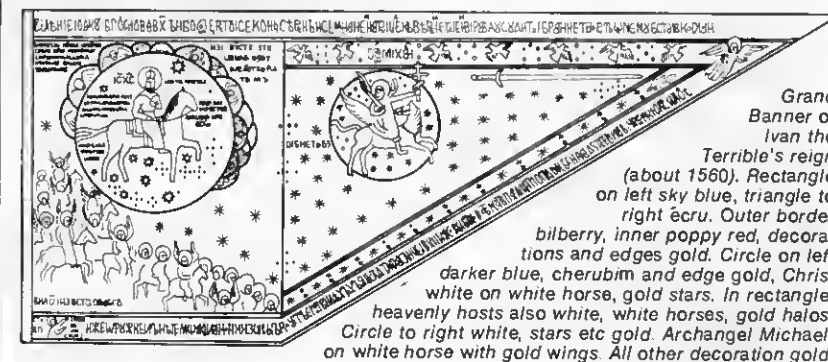
By this period the 'Sons of the Boyars' had adopted firearms to a limited extent. Tartars, as in the 16th Century, were widely employed, and they, like Beshkir and Kal-muk auxiliaries, still relied exclusively on the bow (the latter in fact up to Napoleonic times).

## Guards

Apart from the 2,000 'Streltsi of the Stirrup' mentioned last month (who wore red), and the permanently-paid cavalry, the Tsars at various times had special guard units. The 'Rindi' (men at arms) founded by Ivan III, were an immediate foot bodyguard of axemen; on campaign they would have been equipped as noble cavalry. This might also be true of the 'Jiltsi' founded by Iven the Terrible, who provided a guard of honour of 50 to 100 halberdiers, in coloured ceftans and gold brocade hets, but also included later a mounted guard as shown. Iven also raised the dreaded 'Oprichniks' clad in black robes and pointed hoods, with a dog's head and a broom at their saddlebow, but this short-lived force were political police rather than soldiers. Even shorter lived (1605-6) were the guards of the 'False Dimitri', 100, with pertainers, in red with gold embroidery, 100 halberdiers in violet with red sleeves and red cord trim, and 100 with green sleeves and trim; their weapons were decorated with velvet, bound with silver wire, and had gold end silver fringes.

## Cossacks

Cossacks were not a race but an anarchic society of free frontiersmen developing in the Dnieper-Don area at the beginning of our period. They did not really recognise the Tsar's — or anyone's — authority, but played a considerable role as mercenaries in Russian as in other service — they fought regularly for the Poles (see *Airfix Magazine*, June 1974), who by 1625 had six Cosseck regiments of 1,000 men each, as well as on their own behalf against Turks and Tartars. They even fought for France in the Low Countries in the late 17th Century, and





those who seized Azov from the Turks in 1637 were on their way to serve the Shah of Persia!

Poland employed them as early as 1524, and another of Ivan the Terrible's military reforms was to set up a system of 'Registered' Cossacks like those of the Poles. At Pskov, 1581, there were 500 Cossacks in the Russian army fighting the Poles, and from Ivan's time Cossacks were conquering Siberia, more or less on behalf of the Tsar. Though superb fighters, they were not entirely to be relied on, and were to be found supporting the rebellions of the 'False Dimitri' and of Bogdan Khmelnytsky (1648).

Primarily, the Cossacks were cavalry, riding hardy ponies, and armed with light lance, bow and sabre, later adding firearms (by the 1650s the Tsars demanded a carbine and two pistols as standard). However, they

a and b pikeman and musketeer of a 'German' regiment, 1630s. There is nothing very striking about their dress and equipment, which is fairly typical of the period. c 'Rindi' in ceremonial costume, guarding the Tsar. He wears white fur hat, white coat with ermine trim and gold chains crossed over his chest and back, and carries a highly decorated axe. d Zaporozian with Berdische poleaxe — they often fought stripped to the waist. e late 16th Century Cossack arquebusier fighting in Siberia. His 'striped' garment may be padded for protection. The flag is from the same period and place: it seems to be stiff and is supported by a strut or cord from the pole. f mounted Jilti of 1670s. Note wings similar to those of Polish hussars, and gilt metal 'dragon' attached to ceremonial lance. g Cossack, early 17th Century, armed with bow and light lance. Costume much as later Cossacks. Large, square, saddle cloth. h high-ranking Cossack of mid-17th Century. Plumed, fur-trimmed cap, fur-collared cloak fastened by loops and jewelled clasp, ankle-length robe as for Russian nobles. Note mace, a sign of rank.

could also operate dismounted and also provided good infantry, using berdische poleaxe, musket and pike. Foot expeditions often travelled by river, in 'chaika' or sea-gulls, open craft 60 by 12 feet, with up to 30 oars and 60 rowers, and steering paddles at bow and stern.

Cossacks did not wear armour, and were

dressed in a style similar to that of later times, with blouses or coats of Russian style, often red, baggy trousers like those of the Turks, and sheepskin or fur-trimmed caps. Zaporozians, chiefly infantry, shaved

Continued on page 486

AIRFIX magazine



## CLASSIFIED INFORMATION

### Low-cost gun and missile platform

The MiG-21, currently the backbone of the Eastern Bloc's interceptor strength, evolved from a high-performance defence interceptor specification issued in the mid-fifties.

Designated "Fishbed" by NATO, the MiG-21 follows the design philosophy of the sturdy MiG-15. A light aircraft with a relatively small fuel load, it is basically a gun and missile platform which relies on Mach 2 performance, radar and scramble techniques for its effectiveness.

Two pre-prototypes were built, one with sharply swept

wings — mistaken for a different type by NATO observers and designated "Faceplate" — and one with a delta configuration. Both commenced flight trials in 1955.

The first production variant, Fishbed-A, entered squadron service in 1959 and was soon followed by the mass-production Fishbed-C. A purely day fighter, the Fishbed-C has been widely exported and serves in many Eastern European and Middle Eastern air forces. The type played a prominent part in the 1973 Yom Kippur war. Armament is one 30mm cannon and two K-13 "Atoll" infra-red air-to-air missiles (or two 16 x 55mm rocket pods). Provision is made for two Rocket-Assisted Take-Off units.

A curious export customer for the MiG-21 is India, where

the Fishbed-D — a limited all-weather variant — is manufactured under licence by the Hindustan Aeronautics company. In the Indian Air Force it serves alongside Hawker Siddeley Gnats and Hawker Hunters! A tight security clamp still surrounds the aircraft.

### 125,000 dollar bounty

Naturally, much of the detail about Soviet military aircraft types remains obscure and — just as the U.S.S.R. wanted to get a Mirage — the Western powers itched to study a MiG-21. A bounty of 125,000 dollars was finally collected by an Iraqi major who defected to Israel with his aircraft in 1966. A flight of Algerian pilots is reported to have landed in Israel the following year. Anyway, it is an open secret that at least two MiG-21s have found their way to the United States.

The latest-known MiG-21 variant is the Fishbed-J, beefed-up to carry extra fuel and avionics. This version has low-altitude supersonic capability. At least 5,000 MiG-21s have been built, although the true number is probably nearer 10,000. It is considered a good performer at high altitude — and a string of international performance records substantiate the claim.

Western criticism of the type centres around its limited armament-carrying ability and its small radius of action. But — at the same time — it must be remembered that a MiG-21 costs around half as much as a Dassault Mirage.

### other reading for enthusiasts

"Profile No. 238" by John F. Brindley. Profile Publications.

Revell's 1/32nd scale MiG-21 stands over 16" long, with a wing-span of over 8". The detailed Tumansky RD-11 Turbojet engine and afterburner is removable, and the lifelike pilot figure sits amongst a wealth of big cockpit detail. Two "Atoll" missiles are underwing-mounted. This model can be made up as a MiG-21PF ("Fishbed-D") or a "Fishbed-E" (similar to the -C except for broad-chord vertical tail surfaces). Four-colour decals are included for the Russian and North Vietnamese air forces. At your stockist NDW! It's the latest addition to the Revell range.

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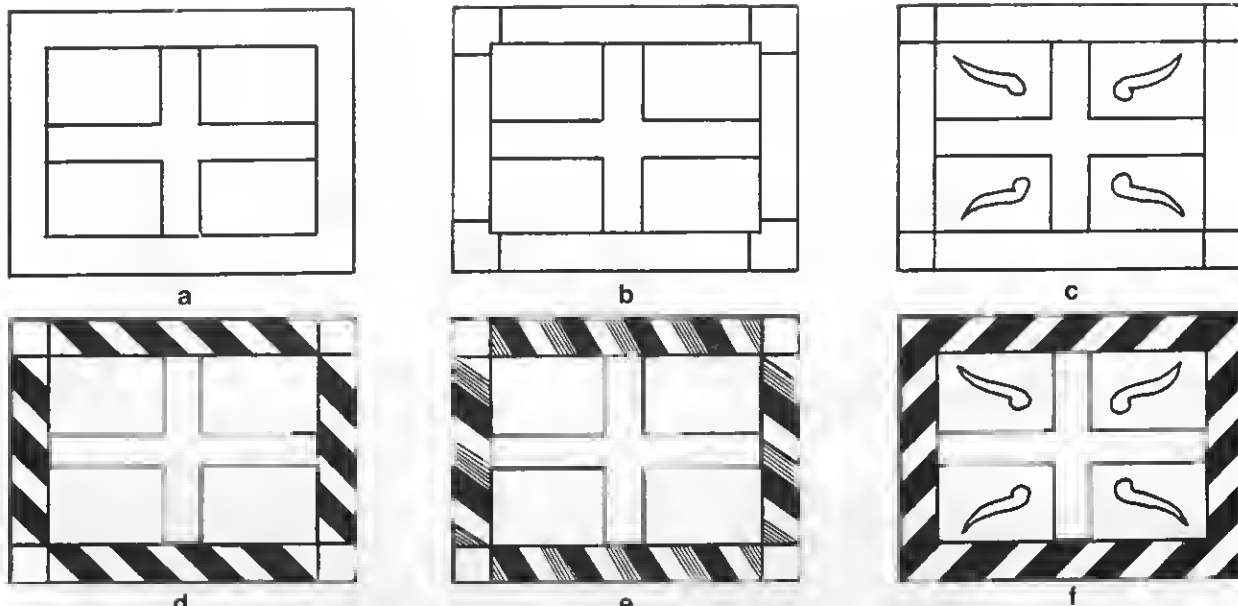


### a box full of action

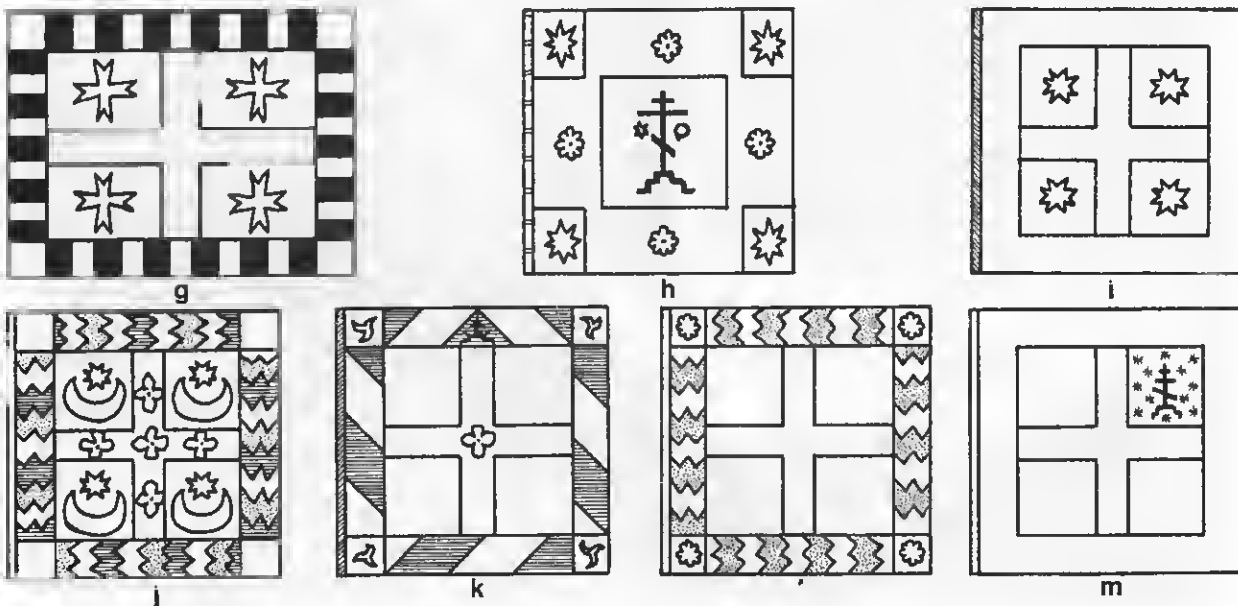
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a - g Moscow Streltsi flags. a 1st Regt: border yellow, cross white, ground raspberry, 2nd Regt: border yellow, cross white, ground grey; 3rd Regt: border white, cross raspberry, ground green; 4th Regt: green, white and orange respectively; 5th Regt: white, yellow, red, clear blue respectively; 6th Regt: clear green, dark raspberry, yellow and white; 7th Regt: black, yellow, clear green and yellow. c 13th Regt: border and ornaments white, cross blue, ground bilberry. d 11th Regt: corners yellow, borders white and blue, cross black, ground raspberry. e 9th Regt: stripes white, yellow and red, ground and corners cerise, cross white. f 12th Regt: cross white, ornaments cerise, ground black, stripes yellow and cerise. g 10th Regt: cross black, ornaments raspberry, ground orange, corners white, stripes green and white. h - m earlier Streltsi flags. h pole blue, corners red, border white, centre red, 'flowers' red, stars, cross etc gold. i pole raspberry, border green, cross black, ground white, stars raspberry. j pole violet, corners black, cross white with small red crosses on it, ground red, moons and stars yellow, border emerald green, medium blue and light yellow. k pole dark rose, corners dark blue with red ornaments, borders red and white, small cross at top yellow, main cross yellow, cross at centre red, ground light blue. l pole dark rose, corners dark blue, flowers red, border white and yellow, cross red, ground dark blue. m pole raspberry, border light yellow, main cross white, ground red, small cross and stars white.



Continued from page 484

their heads except for a top-knot but wore long moustaches, while Terek and Yaik Cossacks wore large beards.

They seem to have employed a simple decimal organisation in 100s and 1,000s and in battle formed in up to three crescent lines of 'lava', threatening to outflank the enemy, and against the Tartars or similar enemies made good use of their wagon train for defence. Guns and wagons advanced in two parallel columns, wheeling in to form a triangular wagon-laager or 'Tabor' when attacked, the wagons chained together, or even overturned and banked up with earth.

## Artillery and train

Ivan the Terrible was said to be 'well furnished with great ordnance' and another aspect of his reforms was his creation of the artillery arm, involving the hiring of foreign gunners and gun-founders. His guns included mortars and a wide range of 'brass' cannon which put on quite an effective display outside Moscow. Guns produced in Russia included the 'Tsar Puchka' (King of cannon), which at 36 inch calibre and 17 foot length is supposed to be the largest cannon built. According to an English witness Ivan had no less than seven such pieces among his artillery!

In the 1580s the Tsar had at least 170 pieces, and a large number were taken into the field against the Poles, but the artillery was rather immobile and its effects limited by lack of understanding of its use, even in the 17th Century.

The Russians had their own version of the wagon laager, the 'gulay gorod' or 'walking castle'. Not only had they protected wagons

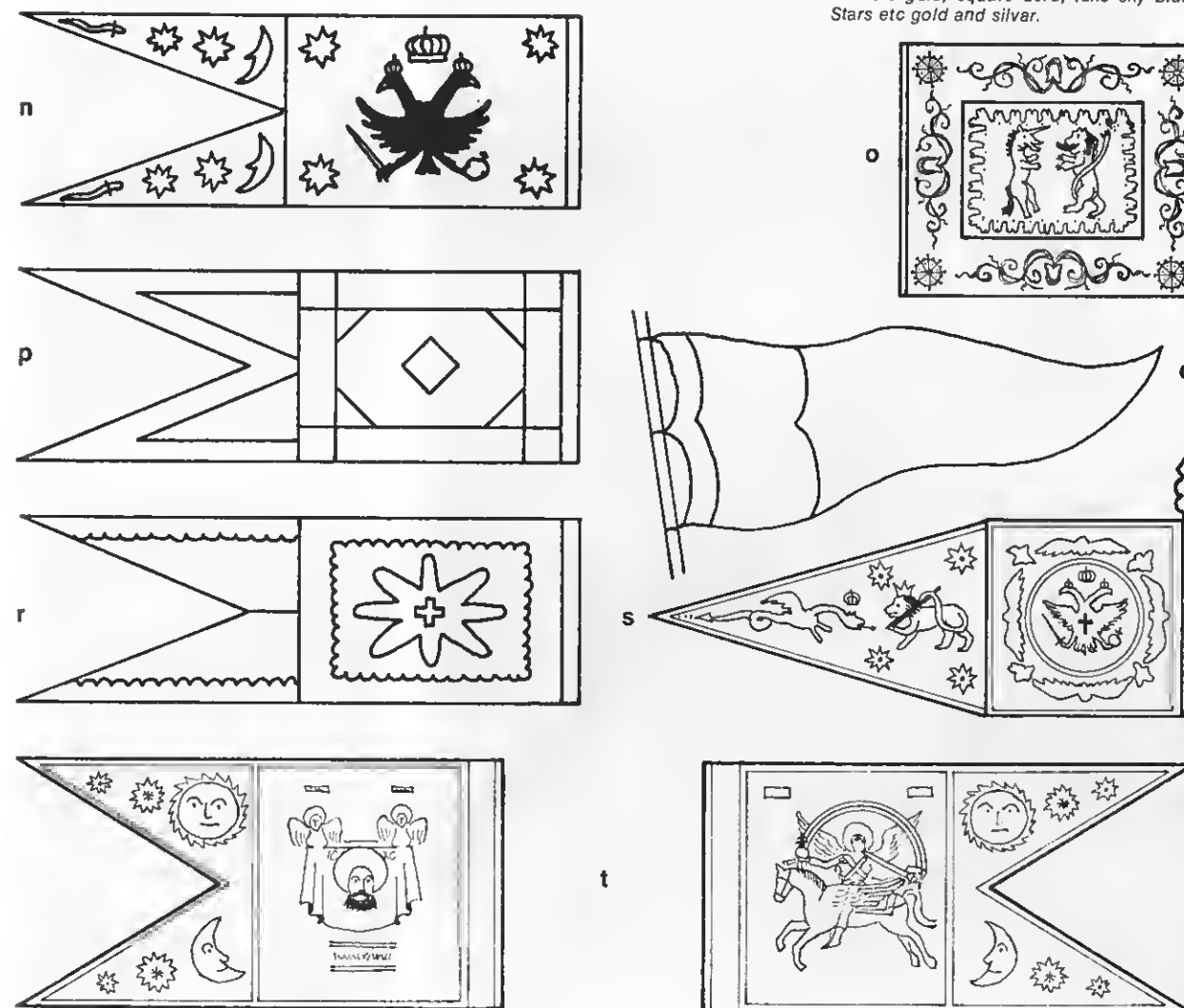
similar to those of the Poles, but also a pre-fabricated wooden wall with loopholes, carried in the wagons and set up as a long double wall with a nine foot space between and closed ends, from which the infantry could fire.

## Flags etc

Cossack Atamans or leaders used horse-tails like the Tartars, but Cossacks also used large triangular flags, like the crimson one carried by Mazepa's followers later; also square or other flags with religious subjects like the red banner of Bogdan Khmelnytsky, which had an archangel on it. Types of Russian flags are illustrated. Under Ivan III the two-headed black eagle derived from Byzantium was adopted in place of St George and the Dragon, but the latter remained a very usual emblem on Russian banners, and also appeared on a medal awarded for bravery as early as the 1580s.

I would like to thank Alex Marcoff for his assistance in the preparation of this article.

n 17th Century cavalry flag. Pole red; rectangle ground emerald green, eagle red, stars yellow; tails red, wavy knives green with orange handles, left stars orange, centre green, moons orange. o 17th Century infantry flag. Border gray, ornaments at sides red, at corners red circles with black motifs. Centre sky blue with white 'toothed' border, lion and unicorn white. p 17th Century cavalry flag. Pole black; rectangle ground blue, corners and central diamond white; border blue at top and bottom, black on sides, corners red. Tail red with white border. q late 15th Century cavalry flag. Panels gold, white, red reading away from pole. r 17th Century cavalry flag. Pole gray; rectangle ground white with red 'star' and border, central cross white. Tails white, red, white from top to bottom. s 17th Century cavalry flag. Light brown, gold border. Circle, dragon, lion, stars and eagle gold; cross on eagle and wings of dragon silver. t two sides of 17th Century cornat, made of patterned or embroidered taffeta. All borders gold, square acru, tails sky blue. Stars etc gold and silver.





## news from AIRFIX

- 1 Spitfire Mk VB
- 2 KM Prinz Eugen
- 3 Scorpion tank
- 4 George Washington
- 5 'Tribal' Class destroyers
- 6 French Imperial Guard

1

THE SUPERMARINE Spitfire must surely be the best-known fighter aircraft of all time and this new 1:72 scale construction kit of the Mk VB aircraft is sure to make it an even more popular subject to model.

Two versions can be constructed with this 35-part kit — an RAF or a USAF machine. Retractable undercarriage, pilot, exhausts, propeller and Browning machine-guns are all finely detailed and can be finished by painting using the colour guide provided on the instruction leaflet.

More than 5,000 VBs were built, serving in Russia, the Middle and Far East as well as in Europe. The aircraft had a top speed of 371 mph at 20,100 feet, rate of climb 3,250 feet per minute and a service ceiling of 37,500 feet. The VB was introduced in 1941 and was armed with two 20 mm cannon and four Browning machine-guns.

Price of this kit is 34p.

Below the 00/HO French Imperial Guard figures. Above right the Collectors' Series model of George Washington.



2

VICTOR OF THE battle with HMS Hood and survivor of the daring 'Channel Dash' of 1942, the German heavy cruiser KM Prinz Eugen now becomes the subject of a superbly detailed model in the Airfix 1:600 scale warships series.

This exciting model depicts the ship as she was during the English Channel operation of February 1942 when Hitler ordered the return of the capital ships Scharnhorst, Gneisenau and Prinz Eugen from the French port of Brest to Norway.

The impressively sleek lines of this powerful ship are beautifully reproduced and much fine detail has been put into the superstructure — from the eight 8-inch guns of her main armament down to the spare float for the ship's Arado reconnaissance seaplane. Modelled from the original shipyard plans, the kit incorporates a wealth of intricate detail in its 151 parts.

Prinz Eugen, the seventh ship to bear this name, was launched in 1938 and was one of the 'Hipper' Class heavy cruisers. Her battle honours include the engagement with HMS Hood in 1941, Baltic convoy escort operations in 1943-44 and the bombardment of Russian positions late in the war. She surrendered to the British in 1945 and under American command became one of the ships assigned to the atomic tests at Bikini Atoll in the Pacific in 1946. In December 1947 she capsized in shallow water at Kwajalein Atoll — a sad end for a proud ship.

The completed kit measures 14 inches long, 1½ inches wide and 3½ inches high. A full colour guide for painting the model is provided which can be used in conjunction with the striking box top illustration. Prinz



Eugen's secondary and anti-aircraft armament is accurately reproduced together with the ship's radar, range-finding equipment and torpedo tubes. Special features include rotating and elevating guns in the main turrets, two moveable cranes and optional full or waterline hull. The concise tri-lingual instruction leaflet gives a stage-by-stage assembly sequence. Price is £1.19.

3

THE LATEST addition to the 00/HO armoured vehicles series is the Scorpion armoured reconnaissance vehicle. This construction kit contains 65 highly detailed pieces accurately reproducing the armaments, tracks, searchlight in the turret, Radiac mast (nuclear fail-out detector) and all the fine detail and riveting. There are detailed assembly instructions and full colour illustrations for use as a painting guide. Price of the kit is 25p.

The Scorpion is the first all-aluminium armoured vehicle in the world and was designed to replace the Ferret scout car. It is currently in service with the British Army and large export orders are expected for this highly manoeuvrable armoured reconnaissance vehicle.

Optional parts are provided in this kit for a Scimitar armed with Rarden 30 mm gun which, along with the Spartan, Striker, Sultan, Samaritan and Samson, is a member of the Scorpion family of vehicles (see Airfix Magazine, December 1974 and March 1975). A colour photograph useful to anyone making this kit appeared on the cover of our June 1974 issue, and last month an article on building the Fox armoured car using Scorpion parts.

4

THIS BEAUTIFULLY detailed model depicts George Washington in full dress uniform on horseback. The kit, containing 31 parts, is moulded in white polystyrene and there are two, different view, colour illustrations on

AIRFIX magazine

the instruction leaflet which should be studied as a guide for painting the model. The head of the figure can be positioned at varying angles to give a slightly different aspect to the finished model.

All the intricate detail of belts, straps and horse harness can be perfectly reproduced by using the template on the instruction leaflet and the plastic sheet provided. When assembled, the model measures approximately 3½ inches high, and costs 34p.

George Washington was promoted to Commander-in-Chief of Continental Congress in June 1775, after the start of the War of Independence in April of that year, replacing General Artemas Ward. A brilliant and courageous leader, Washington surmounted defeats and setbacks and finally led his army to victory. The peace treaty was signed in Paris in September 1783.

5

THE THIRD introduction in the Airfix series of 1:1,200 scale snap-together waterline construction kits is a peck containing two 'Tribal' Class destroyers. Any two of the 16 ships in this class can be constructed from this pack, but perhaps the best-known of all is HMS Cossack.

There are 20 snap-together parts moulded in grey polystyrene, giving a wealth of detail in the armaments and lifeboats on the deck of the destroyer. Because of their snap-fit, these kits can be assembled in a matter of minutes and can also be painted with the help of the colour guide provided. Price is 25p.

The Waterline series has been produced for wargamers and modellers who wish to re-enact famous sea actions and battles.

The Tribal Class was one of the most powerful and famous in service with the Royal Navy during the Second World War. Between 1936 and 1938, 16 were built but only four survived the war to carry on in service with the Canadian and Australian navies until the late 60's.

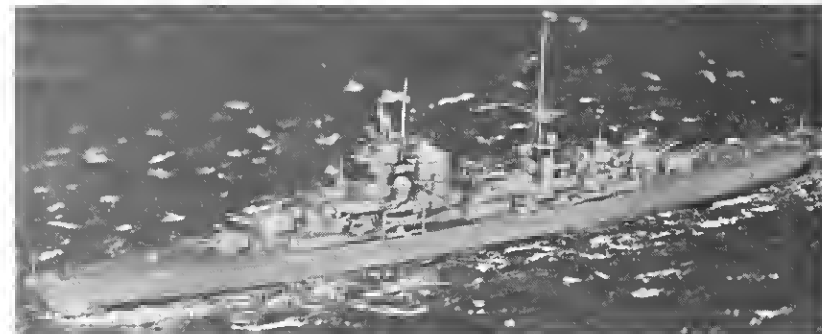
6

THE INTRODUCTION of the Grenadiers of the French Imperial Guard brings to a total of eight the Waterloo figure sets in 00/HO scale — four British and four French. The set contains 48 pieces depicting the Grenadiers in a variety of realistic battle poses — kneeling firing, advancing with bayonets fixed, standing firing, loading, etc. A wealth of intricate detail has been put into the uniforms and weaponry and the figures can be painted with Airfix enamels.

The Imperial Guard was formed in 1804 from senior infantry regiments of the Grenadiers and Chasseurs which had comprised Napoleon's Consular Guard at the Battle of Marengo. This Guard was later known as the Old Guard, who were the real veterans who had fought close to Napoleon himself. 300 of the Grenadiers accompanied Napoleon in his exile on Elba to return in 1815 as the Elba Battalion and number among the 1st Regiment of Grenadiers at Waterloo.

Almost the last act of the battle was the advance of the Imperial Guard, but this was

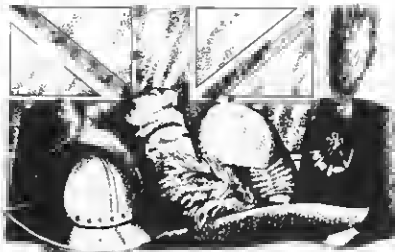
April 1975



Top the 1:600 scale Prinz Eugen. Centre the new 1:72 scale Spitfire VB. Above Scorpion armoured reconnaissance vehicle.

repulsed by the British and their allies. The Old Guard stood by Napoleon to the end and although they ceased to exist when he was banished to St Helena, they remain as a great military legend. This set will therefore

be especially popular with wargamers who can now assemble whole battalions and regiments of Old Guard (and other Grenadier) figures at very low cost — 25p per set.



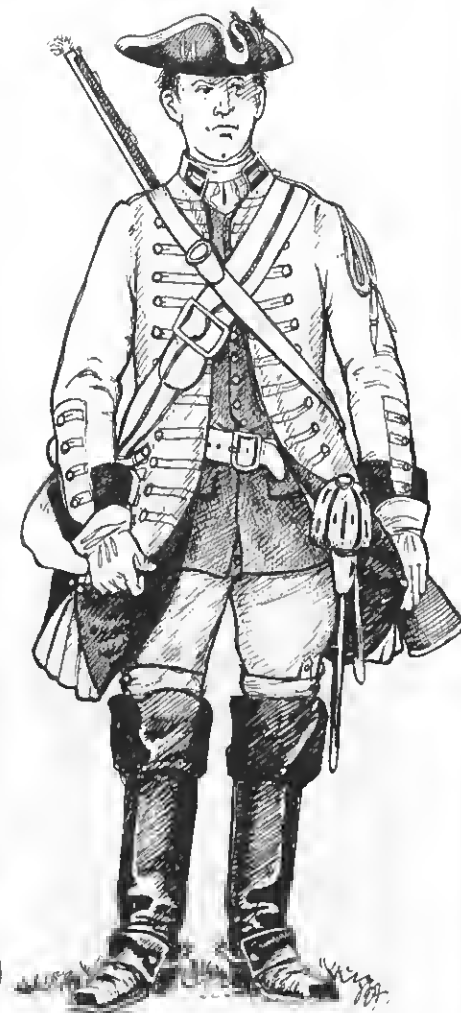
# british army uniforms 1660-1900

The 1st The Royal Dragoons c.1742 by Bryan Fosten

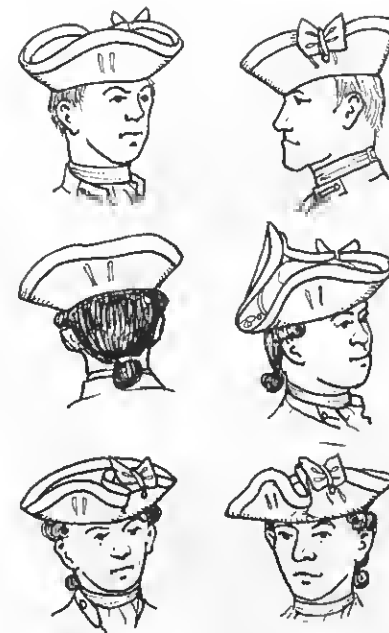
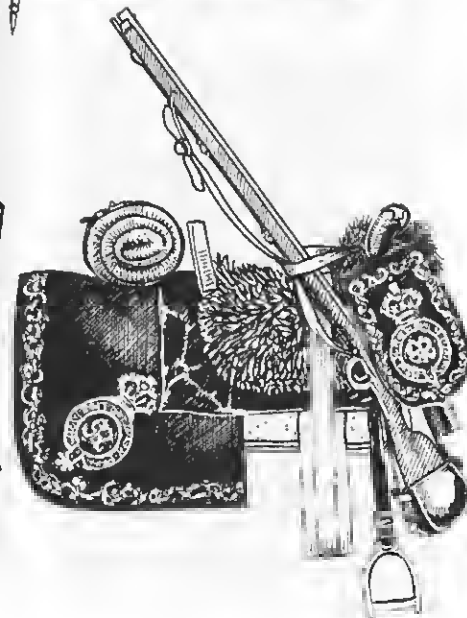
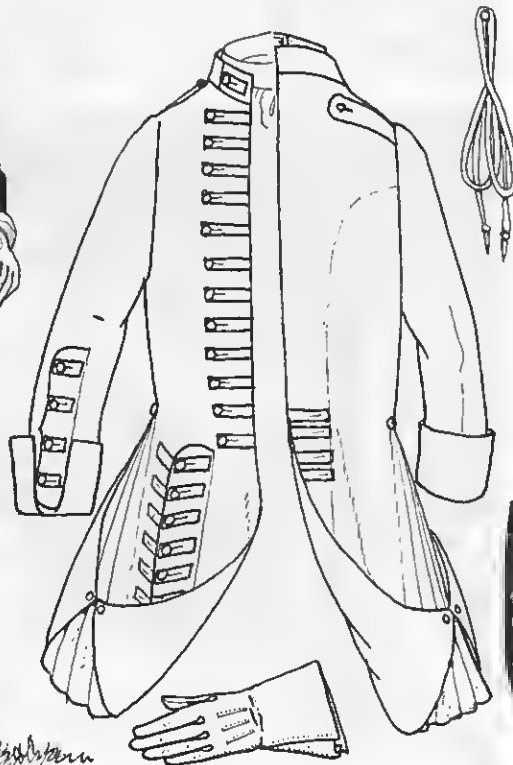
JOHN CHURCHILL, the first Duke of Marlborough, was the first Colonel of this elite British cavalry regiment. Subsequently, and until the period under review, the regiment had several eminent Colonels including the Earl of Clarendon, in 1685 and again in 1688, the Earl of Strafford in 1697, and the third Duke of Marlborough following his illustrious forbear in 1739. The Colonel in 1742 was Lt General Henry Hawley.

For details of the uniforms of this period we have to resort mainly to the famous coloured plate work called the 'Representation of Clothing of His Majesty's Household and all the Forces upon the Establishment of Great Britain and Ireland 1742'. This book is said to have been commissioned by the great Duke of Cumberland to act as a form

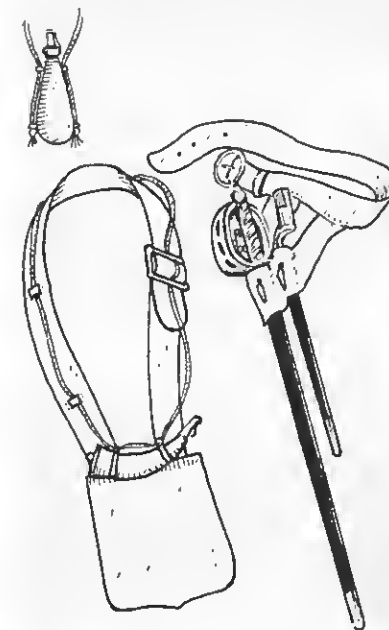
Continued on page 492



Left and right front and side views of a trooper. Below front and rear view of a coat of the period showing how the buttons are set on. The shoulder knot of the Royal Dragoons was on the left shoulder. Note how the shoulder strap is depicted. In some contemporary illustrations it appears on top of the shoulder, in others deliberately to the rear. Also shown, at bottom, is a gauntlet. Below right a general view of the saddlery. For the Royals, this was blue with yellow and white embroidery for the saddle cloth and housings, and blackened leather for the saddlery.



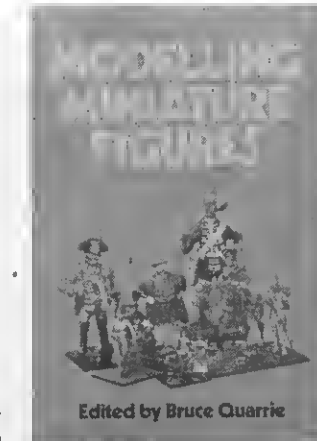
Above six views of the hat, which is invariably tilted forward with the front corner over the left eye. Below the pouch, pouch belt and flask with the cord, blue for the Royals, passing through two little hoops at the back of the pouch belt. Different flasks are shown as several different styles are shown in old prints. The waistbelt with the sword end bayonet suspended from a frog. Different designs of basket hilt are shown for this period.



## The first detailed book on the subject! No figure modeller dare ignore it . . . **Modelling Miniature Figures**

Edited by Bruce Quarrie

No other publication on this subject has gone into such detail about the different scales, materials and techniques that can be used when modelling, converting and animating model soldiers and other miniature figures.



Individual chapters are written by renowned modellers, many of whom have written for *Airfix Magazine*, and between them they cover figures ranging from the tiny Airfix plastic soldiers to expensive large-scale metal pieces. They include Donald Featherstone writing on metal casting (a useful process for wargamers who need lots of small figures), Martin Rendall on wood carving (a technique that may be new to many modellers), Roy Dille on making the realistic dioramas for which he is famous, and Sid Horton on Airfix figures (of course!). The book is profusely illustrated with photos of figures under construction and finished, as well as line drawings showing specific conversion techniques and examples. Lists of manufacturers and their addresses, accessories, societies, and books for further reference make this an invaluable purchase for anybody making model figures in any scale. 152 pages, 9" x 6" (228 x 152 mm), 88 photos and 119 line drawings. £3.75 net (£3.98 by post)

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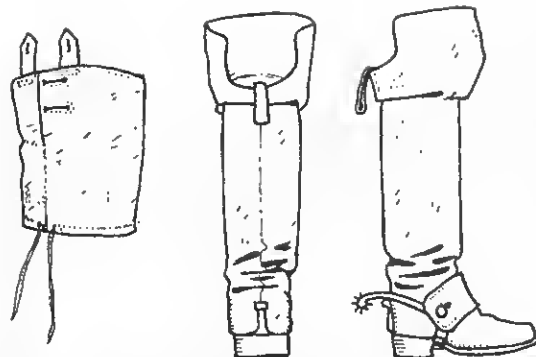
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The jacked leather boot with box spurs and canvas boot stockings. These were sometimes made of white cloth and were worn on the knee to protect the breeches from wear and discoloration from the blacking applied to the boots. Many variations are shown but it is known that the Royals had two yellow tabs for attaching to the breeches, presumably with buttons.

## Continued from page 490

of uniform regulation for the forces. Each plate illustrates a soldier of a regiment of cavalry, foot or marines and gives a superb insight into the types of dress worn by soldiers of the period.

The plate for the 1st Dragoons shows a mounted trooper with slung carbine, but to attempt to reconstruct the uniforms of the remainder of the regiment it is necessary to use a little imagination. Apart from the miscellaneous portraits of officers of other regiments there is very little concrete evidence which we can use. However with the aid of reports by inspecting General Officers, newspaper reports and descriptions in gentlemen's journals of the time it is possible to arrive at an intelligent projection of their uniform within the bounds of reasonable possibility. The following descriptions have been achieved in this way using the 1742 book trooper as a basis.

## Officers

Black beaver or fine felt cocked hats bound with gold lace and with a black silk bow-folded cockade retained by a fine black cord and a regimental gilt button. The hair was generally cropped short and covered with hair wigs of the bushy type which followed the discontinuation of the very long perriwig of the first decade. Wigs were powdered for parades and inspections.

A long skirted single-breasted scarlet coat with a low scarlet collar and with blue linings. The two fronts of the collar were trimmed with blue collar tabs and the cuffs were also blue, the linings of the coat showing due to the deeply pleated skirts being turned back and fastened with gold buttons. The collar patches were decorated with small gold loops and buttons and the fronts of the coat decorated with similar loops and buttons, the latter set on at the outer ends. The blue cuffs were split and the sleeve closed with a long wide red slash reaching almost to the elbow and trimmed with gold loops and buttons, three on the cuff itself and a further three on the sleeve above.

The rear of the coat was further trimmed with two pairs of gold looping on each side of the central vent. A gold button was sewn at the top of each set of side pleats at waist level and there were vertical pockets set in the skirts, each decorated with two pairs of

loops and buttons. On the left shoulder of the coat a gold knot was worn similar in pattern to an aiguillette.

The waistcoat was of fine white cloth with small gilt buttons and two pockets, one on each front near the lower edge.

Red breeches were worn in long 'roll-up' buttoned oversocks.

Black jacked boots were worn with three inch knee pieces and buckled on spurs.

The crimson net sash was worn over the left shoulder and the sword belt was worn under the coat and over the waistcoat. The sword was a long straight-bladed weapon with a full steel basket hilt and had a leather scabbard with a steel chape.

## Sergeants

Wore better quality coats than the troopers with a broad gold 'orris' pattern lace on the edges of the cuffs and pockets. Gilded buttons. Gold shoulder knot. Buff waistcoats, red breeches with a gold trim up the outside of the legs. Gold laced hat.

## Corporals

Same red coat as troopers with a narrow 'orris' pattern gold lace edge to the cuffs, the pockets and on the shoulder strap. Yellow silk shoulder knot. Hats with gold lace binding.

## Troopers

Coarse black felt cocked hats bound with narrow gold lace. Black cloth cockade with black loop and brass regimental button.

Red coat faced with dark blue. Low red collar with dark blue patches on the fronts. The cuffs were also blue and the pleated full skirts buttoned back to show the blue linings. Yellow looping set on as described for the officer, and with brass buttons. Blue waistcoats. Red breeches with two yellow loops fastening the canvas boot stockings to the breeches. Yellow wool knot on the left shoulder.

Broad buff leather belt over the left shoulder supporting a large blackened leather cartridge pouch. Blue flask cord. Sword of a similar pattern as described for the officer worn in a double frog from a waistbelt worn over the waistcoat but under the coat.

Carbine carried on a broad buff leather strap over the right shoulder, butt down. □

**JE 195 Squadron (c)**  
Reformed October 1944 as a bomber squadron equipped with Lancaster I/IIIs. Letters worn on aircraft of 'C' Flight, eg JE:G-JB475. Disbanded August 14 1945.

**JF 3 Squadron (c)**  
The unit began the war coded QO. Its letters were changed to JF in May 1944 soon after it equipped with Tempest Vs. Example JF:T-NV767 used March-April 1945. Later re-coded J5.

**JF 1654 Conversion Unit (c)**  
Formed May 19 1942 at Swinderby with eight Lancasters and eight Manchesters. Moved to Wigsley June 15 1942. Received Stirling IIIs at the end of 1943, eg JF:M-LK502 in use March 1944 until written off in a flying accident May 27 1944. These were replaced by Lancasters at the end of 1944, eg JF:R-HK681.

**JG 17 OTU (c)**  
See under AY for details. Examples of JG coded aircraft: Wellingtons JG:A-NA795, JG:Z-PG134; Spitfire VB JG:H-BL415. Some of the unit's last Blenheim 1s (which flew from Steeple Morden) carried letter-number individual identity such as JG:17.

**JH 317 Squadron (c)**  
Formed February 22 1941, disbanded December 18 1946. Successively flew Hurricane 1s, eg JH:X-V7339 used February-July 1941; Hurricane IIAs used July-October 1941; Spitfire VBs used October 1941-September 1943, eg JH:O-W3424, a machine operated November 1941 to May 1942; Mk IXs September 1943 to May 1945, eg JH:P-ML192; and Spitfire XVIs used May 1945 to December 1946, eg JH:M-TD128.

**JI 514 Squadron (c)**  
Formed September 1 1943 and based at Waterbeach from November 1943. Used Lancaster IIs until mid-1944, eg JI:C-LL625 in use November 1943 until lost during a Berlin raid of March 25 1944. Lancaster I/IIIs gradually replaced the IIs in the summer of 1944, eg JI:B-LM719. Squadron disbanded August 22 1945.

**JJ 305th Bomb Group, USAAF (c)**  
Letters carried on B-17s of 422nd Bomb Squadron from December 1942 until July 1945.

**JK Details of allocation unknown**

**JL 10 OTU (c)**  
Letters carried by a Flight of the unit which was equipped with Whitleys in Coastal Command colours. A detachment flew many operations from St Eval. Examples in Coastal camouflage: JL:L-BD282, JL:S-Z9368. Detachment to St Eval began August 4 1942.

**JM 20 OTU (c)**  
Formed May 27 1940 at Lossiemouth. Used successively Wellington 1, 1C, III and Xs. Examples: Mk 1C JM:W-N2859 written off in a flying accident April 5 1942; JM:K-Z1087 used March-October 1942; Mk X JM:L-LP752. Unit disbanded August 1945.

**JN 150 Squadron (c)**  
Used on aircraft of the squadron from September 1939 until October 1944. Examples of aircraft carrying JN coding: Battle L4942; Wellington 1C JN:A-R1016 used August 1941 until destroyed in a flying accident

AIRFIX magazine

# squadron codes and colours 1939-1956

By Michael J. F. Bowyer and John D. R. Rawlings



Top Tempest V JF:H coming in to land at Kastrup shortly after the end of the war in Europe. Note the absence of Sky trim, and that the machine carries the badge of 3 Squadron on its fin tip (Dansk Fly-Foto, via Hans Kofoed). Above a Battle target tower, JO:O of No 2 AACU photographed in 1940. These aircraft were in use from mid-1940 until 1942 (IWM). Below Defiant 1 T4037 of 256 Squadron. The machine joined the squadron in October 1941, serving until it passed to 287 AAC Squadron in May 1942 where it served for a month before passing to a civilian repair unit. It was converted into a TT Mk III at Reid & Sigrist but was struck off charge before passing to any RAF unit. The letters are a very pale shade of grey on the black finish, and the serial is dull red (IWM).



April 1975

August 15 1941; Mk III JN:N-X3448; Mk X JN:S-HZ713.

**JN 75 Squadron (c)**  
Formed its 'C' Flight early 1943, this being coded JN. Letters used on Stirling Mk IIIs, eg JN:L-EF163 in use from September 1943 until destroyed as a result of operational flying December 17 1943. Lancaster I/IIIs began to replace the Stirlings in March 1944 and an example used by 'C' Flight was JN:O-NN747. Disbanded October 15 1945, the letters JN having been removed from use shortly after the war in Europe ended.

**JO 463 Squadron (c)**  
Formed November 25 1943, disbanded September 25 1945. Letters PO used from November 1943 until December 1 1943. Used Lancaster I/IIIs, eg JO:A-ED949 which was recorded PO before it was lost on operations January 30/31 1944.

**JO Identity not known**  
Letters seen on a Spitfire JO:C recorded April 14 1942, unit not identified.

**JP 12 OTU (c)**  
See notes on FO for details of unit. Letters used by 'B' Squadron as on Mk X JP:O-LP648.

**JP 60 OTU/132 OTU (c)**  
60 OTU opened May 19 1941 at Leconfield as the second night-fighter OTU, equipped with Defiant 1s and Blenheims. From June 16 1941 it became an all-Defiant unit, and from March 1942 was entirely re-equipped with Blenheims. These aircraft had all worn the JP coding. On June 23 1942 its role was changed to an operational training unit for training crews for Coastal Command Blenheim squadrons. On November 11 1942, No 60 OTU became 132 OTU. At some time the new unit relinquished JP in favour of 9Y. A new 60 OTU was, incidentally, formed to train intruder crews on May 17 1943.

**JO No 2 Anti-Aircraft Co-operation Unit (c)**  
Formed at Gosport in 1939, became No 4 AAC Maintenance Flight at Gosport February 14 1943. Flew an assortment of aircraft including Battle JO:O-L5664, Hector JO:L-K8150 and Roc.

**JO Station Flight Brighton (c)**  
Used post-war, details unknown.

**JR Identity not known**  
Letters reliably reported as used on Halifaxes.

**JS 16 OTU (c)**  
For details see entry under GA. Letters used on Hampdens, eg JS:W-P1246 used February-June 1941; Wellington 1cs, eg JS:R1236; Mk IIIs and Mosquito XVIs, eg JS:B-PF482 used August 1945 to September 1946.

**JT 256 Squadron (c)**  
Formed November 23 1940 with Defiant 1s, eg JT:X-N3480. Defiant IIs used between October 1941 and early 1942. Beaufighter 1Fs used May 1942 to January 1943, eg JT:G-X7845 and Mk VIFs between January and June 1943, eg JT:S-V8501. Letters retained when squadron re-equipped with Mosquitoes and used them in the Middle East, eg Mk XII JT:V-HK187, Mk XIII JT:E-MM531 and later on Mk XIXs, and retained until squadron disbanded in September 1946. □

# NEW

kits  
and  
models



## Do 28D Skyservant

UP UNTIL QUITE recently the only available kit of this unusual looking West German aircraft was a rather poor vac-form offering, but now Matchbox have put this right with the release of their version in the 'three colour range'.

Most of the Matchbox kits released initially were available in other manufacturer's ranges, but in the Do 28 they have broken new ground, thus avoiding natural comparisons with their competitors.

Apart from the orange, white and chocolate coloured plastic, one is first struck by the crispness of the mouldings and the ease with which these go together. The interior detailing, which comprises a crew, central control console, floor and six passenger seats, is equally well done and adds a lot to the completed model.

The fuselage windows do not have the benefit of a locating flange and are purely a butt fit into the fuselage recesses, so great care is required when fitting these.

The most noticeable absence on the model is the lack of dihedral on the mainplanes, this should be about 1° and must be added if the model is to capture the true appearance of the original.

Markings are included for a 5 Squadron aircraft of the Federal German Navy, and a Swedish Red Cross aircraft used during the 1969 Biafran crisis.

Two other recent releases in the Matchbox range — 1:72 scale Hawker Tempest and Brewster Buffalo. Each is moulded in two colours and comes with two alternative sets of transfers for 30p.



## Matchbox Lynx

IT IS PROBABLY safe to say that helicopter enthusiasts have had a year that they will long remember, and now have enough versions of rotary winged aircraft to keep them as happy as those who favour the fixed wing variety. Such has been the pace of new releases that in many cases models have appeared almost at the same time as their full-size counterparts have been entering service or making the news.

With the Puma and Gazelle available it was natural that the Lynx should complete the trio of Anglo-French helicopters, and Matchbox have captured the lines of this important aircraft well.

Moulded in blue (two shades) and white, the mouldings look to be some of the best yet seen from this manufacturer, having a minimum of raised or indented surface detail.

The sliding doors are reproduced and do not look too obtrusive as is often the case with this type of working extra. Parts are included to enable either Army or Navy versions to be assembled and decals are provided accordingly. Alternative noses, wheels/skids and two anti-submarine torpedoes are included, as are separately moulded windscreen wipers.

The kit must come in for some criticism in the engine intake area where economics have dictated that the wire guard is moulded as an integral part of the intake, but the avid enthusiast will delight in the fact that this will test his ingenuity to the full. Once he has scratch-built new guards he can then happily tackle the exhausts which is also another area where attention to detail will pay dividends.

## Bandai Sherman

THE BANDAI RANGE of 1:48 scale tank kits has expanded considerably recently, and one of the latest and most complex of the range is the M4A1 Sherman. This model represents a late example of the cast hull series, with 75 mm gun in the wide mantlet, and it maintains the high standards of the Bandai series. Indeed, the standard of detail equals the best offered in the larger scales and even incorporates a degree of interior detail. It is this that raises some questions.

In particular, a very fine replica of the engine is included, but none of the other contents of the engine compartment, such as fuel tanks, are in any way represented, so that without a considerable amount of extra work to provide these missing items the engine covers can hardly be left open to expose the engine.

Similarly, the gun mechanism is carefully modelled, but there is no wireless.

An acceptable set of four crewmen is provided for mounting within the model, but why was the co-driver omitted and why is the loader so tall that the hatch cannot be closed when he is in place?

Apart from these quibbles the only criticism is of the very unconvincing track provided. Otherwise the model is highly detailed and accurate. Assembly is a

Continued on page 496

# MODELITONS

PLASTIC KIT SPECIALISTS—ASSOCIATE MEMBER I.P.M.S.

## FROG A/C KITS

Fokker D.21	1/72	45p
Macchi MC.202	1/72	21p
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G. Gladiator	1/72	45p
F6F-3 Hellcat F.Mk.I	1/72	21p
P-51A Mustang II	1/72	45p
Heinkel HE 162	1/72	45p
Wildcat Mk. IV	1/72	45p
Hurricane IIc	1/72	45p
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D.H. Vampire FB.5	1/72	45p
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D.H. Hornet F.3	1/72	55p
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Hunter FGA.9	1/72	55p
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F.W.190A	1/72	£1.50
A6M5 Zero	1/72	£1.50
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N. Ki43 Oscar	1/72	£2.75
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## MODELDECAL DECALS

1/72 SCALE

All listed sets available:  
1: BAC Lightning Mk.1A, 2 and 6 (six alternatives in RAF service).  
2: F.4 Phantom (VFMA-331, USMC; 497th TFS, USAF and 767 Sqn., RN.).  
3: N.A. F-100D Super Sabre (four alternatives in USAF service).  
4: U.S. Navy (F4U-1A Corsair, VF-17; SB2C-3 Helldiver, VB-7; DS2U-3 Kingfisher, 7: RAF Hunter F.6, 14 Sqn.; Phantom FGR.2, 6 Sqn.; Meteor F.4, 63 Sqn., and Harrier GR.1, 1 Sqn.).  
10: USAF-S.E. Asia (RF-101C, F-105D, A-1H and EC-47N).  
11: F-101, 460th FIS, USAF; Harrier GR.1, 4 or 20 Sqn. RAF, Sabre 6, 430, Sq 1 RCAF and alternative RCAF Sabre fin emblems.  
12: Phantom FGR.2, 17 Sqn., RAF; F-104G, Belgien A.F. and USAF TAC Bases.  
16: USAF-S.E. Asia (2): F-4E Phantom, 34TFS, 288TFFW, Cessna 0-2A 23 TASS, AC-47 432TRW, and USMC DV-10A Bronco, HLM-267.  
17: T-33, RCAF; F-35 Draken, 725 Sqn., Danish Air Force; Mosquito F6.VI, 4 Sqn. RAF. Skyhawk, 805 Sqn., RAN, and A-4K squadron markings for 75 Sqn., RNZAF.  
18: Royal Navy—Post War; (Gannet 4 CDD, Sea Hawk F.1, 898 Sqn., Wessex Mk. I, Ark Royal, and Avenger 6, 831 Sqn.).  
19: West German Air Force and Navy (RF-4E Phantom, AGS1 or S2); F-84F Thunderstreak, Jabo 33; RF-84F Thunderflash, AGS1; Sea King Mk. 41.  
20: H.S. Buccaneer S.2's, 800 and 809 Sqn., F.A.A.; NF-5A Freedom Fighter, 314 or 315 Sqn., Dutch Air Force, and L-20A Beaver, 334 Sqn., Dutch Air Force.  
21: A-4E Skyhawks VMA-311, VA-94; A-4F Skyhawk, VA-164, AD-4 Skyraider, VA-65.  
22: A-7D Corsairs, 356 TFS, 354 TFW., and 40 TFS, 355 TFW., with alternative decals for 357 TFS, 355 TFW., T-33A, 50 TFW., and F-86A Sabre, 116 FIS.  
23: Phantom F.G.1, 43 Sqn. Harrier GR.1A, 3 Sqn. Lightning F.2A, 92 Sqn. All RAF CF104 Starfighter 421 Sqn. C.I.F.  
24: RAF Hunter F.6,

Continued from page 494

lengthy process, but the price of £1.65 is reasonable and an excellent model can be produced.

### Red Arrows

LATEST RELEASE from Aviation Historical Associates, at their new address of 41 The Reforne, Easton, Portland, Dorset, is a set of 1:72 scale decals comprising wing and fuselage serial numbers for the whole Red Arrows team of Gnats.

Printed in the correct shade of roundel blue, these decals cost 30p a set plus 12p postage which should make them very popular with British modellers and anyone else who has seen the 'Arrows' perform at air displays.

### Revell Boeing 747

THE EXCESS 'FLASH' which has marred a number of recent Revell releases is noticeable by its absence in the company's latest airliner kit, the famous Boeing 747 'Jumbo' jet in 1:144 scale.

The enormous size of this aircraft is brought home to those who are maybe not as familiar with civil aircraft as they are the military ones, when the model is compared with, say, the Airfix SkyKing series.

From the humped cockpit to the enormous intakes on the jet engines, the Revell design team have captured the feel and looks of this beauty from Boeing which will add a talking point to any constant scale collection of airliners.

Surface detail is very delicate and well in keeping with the overall scale, while the 18 wheels and their wells all have a considerable amount of detail included on them. If the stand is not to be used weight must be added to the nose area but so vast is the interior that this presents no problems.

All mouldings are in white which is a good choice for junior who maybe doesn't wish to paint his model, but adds headaches for those who do, as trying to paint white over white is difficult at the best of times, and the areas involved on this model may well lead to a few modellers suffering from a mild form of snow blindness!

Transfers are for a Lufthansa aircraft and are accurate as well as nicely printed.

### Revell paints

WITH REFERENCE to our review of Revell's Mirage and TriStar in the February issue, we would like to apologise to the company and all readers for the outdated reference to Pactra paints. Revell are now, of course, marketing their own brand of enamel paint, as shown on page 452 of this issue.

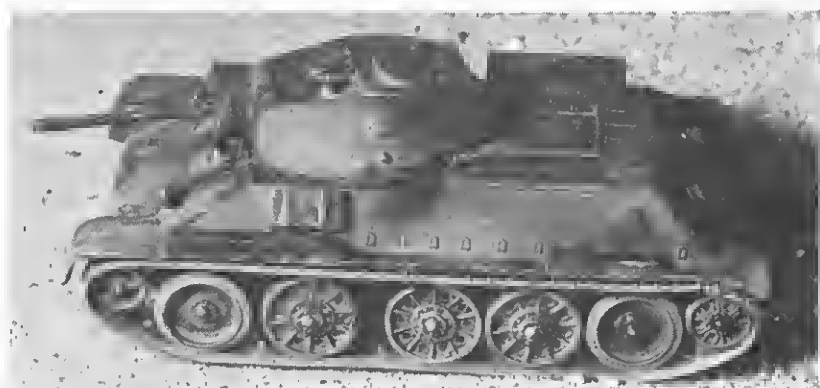
### Fujimi T-34/76A

A POPULAR SUBJECT, the T-34 was one of the best tanks of the Second World War, and though a nice kit has long been available from Airfix, this Fujimi version deserves a place in any collection as it has all-steel wheels. In fact there is the option of rubber tyres or all-steel simply by putting them inside or out.

Photographs of T-34s show that often var-



Above sure to be one of their most popular models, the Pathfinder airport crash truck from Corgi is a 'must' for junior — but parents be warned: the water cannon really fires! The model, which works out to 9 3/4 inches long, is in 1:48 scale and also features a working siren powered off a PP3 battery. Price is £4.95. Below Fujimi T-34.



ious combinations of wheel type were used and the kit has been finished with first and fifth rubber tyre, with the three centre wheels all-steel.

Airfix turrets, by the way, can easily be modified to fit the Fujimi and vice-versa, and there are other parts easily interchangeable to allow for many variations of equipment.

Photographs of T-34s in action suggest many are of mixed blood so a perming of parts is authentic. The kit is to the usual high Fujimi standard and was provided for review by Ren-Models of Cambridge. Price 60p again, with a T-34/85 and SU-85 to follow.

### 8.8 cm shells

AND NOW FOR something completely different...

Realising the current surge of interest in military weapons and accessories, a new company — Lemarka Reproductions, 155A Castle Road, Bedford MK40 3RT — has produced the first in what promises to be a

very interesting line of 1:1 scale replica artillery shells.

The obvious choice — a German 8.8 cm armour-piercing shell — has been chosen for the first release, which comes in five parts moulded in heavy-duty polystyrene and packed in a strong cardboard box.

Measuring nearly three feet in height, and

Component parts of the '88 kit.



AIRFIX magazine

moulded in black and 'brass' coloured plastic, the assembled 'shell' makes an unusual addition to any modeller's 'den'. The moulds were taken from an actual German shell and are thus 100% accurate, except that the engraved markings on the projectile itself have been reproduced on both sides instead of just one. One set of these should therefore be filled with body putty and sanded smooth to blend in with the rest of the plastic before painting.

The kit, which retails for £3.95, includes a detailed booklet which explains everything anyone could want to know about the model shell, and includes a page illustrating (actual size) the stencil markings which should be painted on to the projectile and cartridge.

### Revell Oscar

REVELL, WHO HAVE done probably more than any other Western manufacturer to promote the more interesting Japanese aircraft of the Second World War, have come up with a 1:32 scale Ki 43 Hayabusa (Oscar) as a companion to the earlier Zero, Raiden and Hien in this series.

The Revell kit faces direct competition from a similar Hasegawa offering which, we believe, is in the same price range. But we don't think it is fair to compare the two kits. Hasegawa offer a better boxtop painting than Revell, but it's enough to say that parts from both models could be combined by wealthier modellers to produce an Oscar-winning Oscar!

Revell's kit, which we received for review from Ren-Models, of Cambridge, represents the Ki 43 IIb version, which differed from the Ki 43 I in having a revised wingtip shape. The Mk II emerged with a more powerful engine after service trials of the under-powered Mk I.

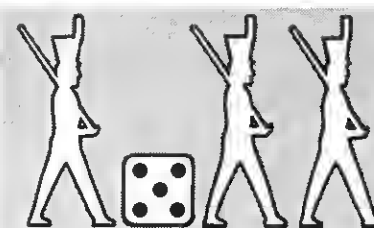
The model is let down by the usual corpse-like pilot figure, but in most other respects it is well moulded and accurate, although with only 51 parts it is rather too simple in view of the asking price of £1.75. In the absence of any decal sheet a lot of time must be spent on simulating the instrument panel dials. A good control column is provided, but the seat must have straps added. Care must be taken in cutting the engine front casing (Part 1) from its circular sprue.

Undercarriage detail is adequate, but it is unfortunate that production costs seem to have forced abandonment of such refinements as vinyl tyres, which were a feature of Revell's Raiden.

Suggested colour scheme is natural metal with green blotches, and a set of good if sparse decals is provided, but anyone seeking an alternative finish might look up the appropriate Profile or RAF Flying Review for November 1957. That issue carried a colour plate of a Ki 43 IIb in the green, brown and light grey finish of the Royal Thai Air Force during the 'friendly' Japanese occupation. The official emblem of the Thai Royal Family — a white elephant on a red background — was carried on wings and tail, and spinner was red.

The Oscar, while not a masterpiece, is an honourable addition to Revell's 1:32 series.

April 1975



### Miniature Figurines

RECENT RELEASES from the ever-prolific Minifigs include sci-fi, American War of Independence, Middle Earth and ancient figures. The latter additions are remoulds of the horses which go with the two PB ranges. At present these include cataphract horses, Moorish ponies and various other mounts, due to be followed by another 13 recasts in the immediate future (probably available by the time you read this).

All the new horses are in the correct proportions recently adopted by Minifigs, and each is in itself a work of art, particularly A2, A9 and A12, the cataphract horse. The only real complaint we have is that the Moorish ponies look more like hairy horses.

Another new 'figure' is a rather bulbous and repulsive Shelob, or 'Giant Spider' as Minifigs call it, for those keen Middle Earth wargamers. It comes as a body and eight separate legs. Also for those who like such things are a number of new science fiction releases, most of which defy description though some look rather like Co-Co the clown on a bad day. These figures are all rather crudely executed and do little justice to the fine detail of which Minifigs have proved themselves capable.

Such detail is to be found in the War of Independence additions, which are undoubtedly amongst this firm's best yet, with some remarkably delicate undercuts and details such as straps and other accoutrements. Every figure is cast in a notably realistic stance, though some lend themselves more to the diorama than the wargames table.

Minifig wargames figures are available from Miniature Figurines, 28/32 Northam Road, Southampton, Hants.

### Third Reich

ONE OF THE most interesting, though complicated, games to come our way for some time is Avalon Hill's new 'Rise and decline of the Third Reich', which really ought to have a question mark after it since it is a complete campaign game re-creating the Western European, Mediterranean and Russian fronts of the last war — and Germany can win.

Probably the majority of wargamers at one time or another have wished that they could relight the whole war in miniature; we all have our pet theories — for example, what would have happened if Germany had invaded Malta straight after Crete, reinforced the Afrika Korps properly, invaded England or postponed the invasion of Russia for a year? — but have been put off

by the complexity of setting up a game. Simulations Publications 'World War 2' game reviewed here recently was a first attempt at this, and as we said at the time is an enjoyable and playable game.

Avalon Hill games are usually simpler than SP's, but in this case the reverse is true since they have gone far deeper into the subject and produced quite a first-rate game, although it does need more than two players if you are to obtain full benefit from the complex and detailed rules.

As might be expected, a great deal of playing time in 'Third Reich' is devoted to working out your countries' economic strengths (expressed in Basic Resource Points) and deciding what to spend your resources on: each type of military unit costs a specific number of points, and so do certain actions, such as declaring war. Each country is also further limited in what it can build to a maximum of each type of unit, since manufacturing capability is obviously not infinite, nor is manpower.

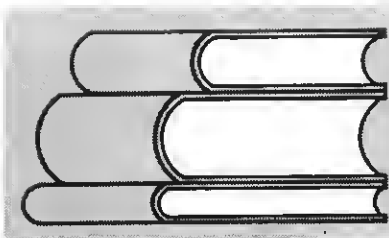
At the beginning of each Move, when the players have sorted out their units and resources, the strongest player moves first. A Move in this game is a complicated affair which must be tackled systematically, and ideally in the order set out in the playing folder. So many activities may take place, and so many factors need evaluation at each step, that it needs great patience and an alert mind to follow them all through.

For example, the game includes provision for building bridgeheads, fortresses, naval bases and airfields; for supply, combat, breakthrough and exploitation manoeuvres, airborne and amphibious assault, naval and air movement, naval bombardment, sea escort for convoys, U-boat activity, and practically anything else you can think of. Ground, air and sea forces can all fight each other singly or in combination in two or three dimensions.

Strategic considerations which are included in the playing rules involve Lend-Lease, Murmansk convoys, diplomacy between players and utilising the resources of occupied or friendly countries. There is literally no end to the permutations which can be employed in this game, which demands a basic knowledge of strategy and economic principles as well as basic military tactics. It is one of the most ambitious games ever produced and certainly not one for the novice to attempt, but for the experienced wargamer it presents an absorbing challenge.

'Rise and decline of the Third Reich' costs £6.50 from Avalon Hill Games of 646-648 High Road, North Finchley, London N12 0NL.





## books for modellers

### Aviation

**Reclng Planes and air races, 1974 annual**, by Reed Kiner. Aero Publishers Inc, 329 Aviation Road, Fallbrook, Cal 92028, available in the UK and elsewhere outside America from W. E. Hersant Ltd, 228 Archway Road, Highgate, London N6. **Price £1.98.**

LIGHT AIRCRAFT racing is extremely popular in the United States, and this, would you believe, is the tenth annual on the subject which Aero have published. It covers the Great Miami Air Race, Reno National Championship, Formula One International races, Miramar Air Show, Californie Air Classic and the Point Mugu Air Fair (featured in *Airfix Magazine*, May 1974).

Apart from numerous photos of the pilots, the book includes some very clear photographs and half a dozen scale drawings of the aircraft, many of which are custom-designed and built and incorporate a variety of unusual features. Anyone who fancies scratch-building some really original model aircraft to add to his collection should certainly get a copy of this book!

**Ryan Broughams and their builders**, by William Wagner. Available from W. E. Hersant Ltd, 228 Archway Road, Highgate, London N6. **Price £3.75.**

LINOBERGH'S 'Spirit of St Louis' is probably history's best-known aircraft, yet so far as we are aware this new book is the first to be devoted exclusively to the Ryan Broughams, of which it was one.

Filling 98 information and photo-packed large-format pages, it is yet another offering from Historical Aviation Album and a valuable addition to the literature of the air.

Designed originally as a monoplane which could carry more payload than the biplanes being used on air mail routes in the 1920s, and faster, T. Claude Ryan's M-1 was rapidly developed into a closed-cabin machine capable of passenger duties. The name 'Brougham' was chosen for the new type so as to suggest respectability, comfort and safety to the new and growing, but still hesitant, generation of airline passengers. Four months after the type came on the market it was world famous as a result of Lindbergh's epic trans-Atlantic crossing, and for 15 years was the most prestigious private aircraft available.

In this new book, William Wagner makes a beautiful job of describing the development and history of the type, right up to the many replicas of the 'St Louis' which were later required by (wealthy!) enthusiasts. Apart from the large number of photos, the book also includes scale drawings of a typical

B-5 version, making it useful to modellers as well as aerophiles.

**Hurricane at war**, by Chaz Bowyer. Ian Allan Ltd, Terminal House, Shepperton, Middx. **Price £4.50.**

ANOTHER in Ian Allan's 'at war' series, this lavishly produced, large-format, mainly pictorial book details the Hawker Hurricane's activities and operations during the last war.

It includes chapters on its service in France, during the Battle of Britain, in Russia, Malta, the desert and the Far East, and used in conjunction with PSL's *Classic Aircraft No 4: Hawker Hurricane*, will enable any competent modeller to complete really first-class models of this famous fighter in any scale.

The text includes many accounts by Hurricane pilots of their experiences, really putting the reader 'into the cockpit' as it were, and is exciting and easy to read.

The photographs in the main are well chosen, though several have been reproduced before in other books. However, the size in which most of them are printed (big!) means that detail which was previously obscure can often now be seen clearly, adding to their value for modellers. Hurricane pilots and their uniforms are also well illustrated, which is of great assistance to anyone wishing to include figures with their model aircraft. Altogether a good buy and, considering the size of the book and the amount of material it contains, good value for money.

**Canada's Wings, Vol 1: The Blackburn Shark**, by Carl Vincent. Canede's Wings, PO Box 393, Stittsville, Ontario KOA 3G0, Canada. **Price \$6.95 including postage.**

THIS MONOGRAPH is a highly detailed account of the Blackburn Sharks operated by the Royal Canadian Air Force, and apart from a meticulously researched and readable text, includes dozens of rare photographs, scale five-view plans and a large number of colour and marking scheme drawings. Photos include cockpit and other detail shots which will be invaluable to modellers. We sincerely look forward to other titles in what promises to be an excellent new series.

**Wellington Special**, by Alec Lumsden. Ian Allan Ltd, Terminal House, Shepperton, Middx. **Price £1.95.**

SIMILAR in format and concept to the *Spitfire at war* and other titles in this series, but shorter and cheaper, this book describes the evolution of the Wellington's design,

including a fascinating chapter on geodetic construction, then goes on to detail the aircraft's operations during the Second World War.

One of the most attractive and popular British bombers of the period, the 'Wimpey' had a tremendous capacity for punishment, as is well shown in some of the photos! Apart from these, there are dozens of photos of the aircraft in the air, on the ground, in factories and experimental establishments, as well as four pages of full-colour drawings and a chapter of cockpit interior photos. For anyone wanting to make an accurate model of this famous bomber Alec Lumsden's book is a 'must'.

**The Observer's Basic Civil Aircraft Directory**, by William Green and Gordon Swanborough. Frederick Warne & Co Ltd, 40 Bedford Square, London WC1. **Price £2.50.**

JAM-PACKED with useful information and photographs, this latest 'Observer's' aircraft book will be avidly purchased by all 'spotters', although it is of limited value to modellers.

Produced to the usual format, it includes a photograph and three-view silhouette drawing on each page, together with data tables and notes on each aircraft type covered. These range from tiny light aircraft and agricultural machines to major airliners, transports and helicopters. It thus ideally complements the *Observer's Basic Military Aircraft Directory* and is a 'must' for every serious aviation enthusiast's bookshelf.

### Military

**Tanks & Transport Vehicles World War 2**, edited by Bart H. Vanderveen. Olyslager Auto Library, Frederick Warne & Co Ltd, 40 Bedford Square, London WC1. **Price £3.75.**

THIS LATEST addition to the Olyslager Auto Library is an interesting though rather haphazard compendium of photographs and drawings, many of them in colour, illustrating a diverse selection of Second World War tanks, half-tracks and other military vehicles. As such, it is a very attractive 'picture book' which will provide modellers with several AFV colour schemes and ideas for dioramas, but it is of extremely limited use as a reference source.

Typical examples from the contents include a cutaway drawing of a Daimler armoured car, colour photo of a 105 mm howitzer T19 half-track, detail drawing of the Canadian-built Universal Carrier, colour reproduction of an old Buick advertisement for the M18 Hellcat, cutaway drawings of the Churchill, a Nazi artist's drawing of a KV-1 in action, a superb colour drawing of the French Berliet tank transporter winching aboard a Char D1, and many other intriguing pictures.

**German Armoured Cars of World War 2**, by John Milsom and Peter Chamberlain. Arms & Armour Press, 2-6 Hampstead High Street, London NW3. **Price £3.50.**

DIVIDED INTO three main sections covering

four-, six- and eight-wheeled vehicles, this new book from John Milsom and Peter Chamberlain will be an invaluable addition to any military modeller or wargamer's library.

Two preliminary chapters are devoted to early developmental types and the evolution of the armoured car in Germany, then the book goes on to describe and illustrate each and every armoured car in the Wehrmacht's inventory during the last war. Extremely detailed data tables are provided for each vehicle, listing weights, dimensions, performance, armament, etc.

Unfortunately, from a modeller's point of view, the book rather falls down on the photos, a high proportion of which are none too clear at all, many being badly cross-screened and presumably reproduced from other publications. To compensate, there are several useful detail shots and views which clearly show number plates and other markings.

**Pan/Ballantine Illustrated History of World War II: Salerno**, by David Mason; **German Secret Weapons**, by Brian Ford; and **Japanese High Seas Fleet**, by Richard Humble. Pan Books Ltd, 33 Tothill Street, London SW1. **Price 50p each.**

THE THREE latest titles in this well-established and useful series to reach us are a mixed bag of varying value to modellers.

David Mason's book on Salerno is extremely well-written, with the usual plethora of photographs and a variety of clear maps and line drawings. Vehicles, uniforms, ships and aircraft all come within its scrutiny, and it will be useful to diorama modellers in particular, as well as students of the last war and wargamers.

Sub-titled 'blueprint for Mars', Brian Ford's book on German secret weapons concentrates primarily on aerial developments and projects, especially the V-2 rocket, and includes many interesting photos, and drawings of actual or projected types. However, the book also includes a quite horrifying chapter on chemical and biological warfare which describes, for example, some of the particularly nasty nerve gases developed by the Germans (and experimentally tried in their concen-

tration camps). This chapter details the effects these gases have on the human body, and one can only give sincere thanks that they were never used operationally. There is also a chapter on naval developments, especially regarding midget submarines.

Many other projects are mentioned, including the rather science-fiction-sounding 'vortex gun', the whole adding up to a book which is extremely interesting to read but of little practical value to modellers. Surprisingly, there is no mention of German experiments with nuclear power.

So far as modellers are concerned, Richard Humble's title *Japanese High Seas Fleet* is perhaps the most useful of these three books, especially to the large numbers of enthusiasts who have seized eagerly on Tamiya's extensive range of 1:700 scale waterline warship models. This book describes the formation of the fleet and its operations during the war, providing the background information every modeller likes to possess on the subjects he is making. It also includes dozens of photos of Japanese warships in action, and scale side-view drawings of several ships which will enable additional detail to be added to the kits.

**Key Uniform Guides, 5 — German Parachute Forces 1935-45**, and **6 — US Airborne Forces Europe 1942-45**, both by Brian L. Davis. Arms & Armour Press, 2-6 Hampstead High Street, London NW3. **Price 95p each.**

ALTHOUGH THEY are numbers 5 and 6 in the series, these two books are the first in Arms & Armour Press's new uniform series which we have seen. Unfortunately, to a large extent the contents belie the series title, since in both the amount of text devoted to uniforms is greatly outweighed by that devoted to operations etc. However, the books' worst fault lies in the paucity of the illustrations, which are not only few in number but not particularly well chosen. So much for the jacket 'blurbs' claiming that they are 'detailed and pictorial references on uniforms'. The only redeeming features of the books really are the pieces of cover artwork in full colour, but it is asking a lot to charge 95p for these and 32 pages of text.

**British Airborne Troops**, by Barry Gregory. Macdonald and Jane's, 49/50 Poland Street, London W1. **Price £2.50.**

THIS INFORMATIVE and attractively produced book describes and details the development, training, organisation, uniforms, weapons, transport and operations of British airborne forces during the last war.

Well written and illustrated with photographs, maps and organisation diagrams, it is a carefully researched piece of work which will be well received by all students of the war and deserves a wide readership at this low price.

**Beginner's Guide to Military Modelling**, by Roy Dilley. Pelham Books Ltd, 52 Bedford Square, London WC1B 3EF. **Price £3.95.**

THIS IS MORE a personal essay than a practical guide, but is nevertheless a readable and interesting account of the scope and some of the possibilities in military modelling open to enthusiasts today. The author covers various topics ranging from human and animal anatomy to guns, AFVs, dioramas (or 'Dilleyramas' as we sometimes call them), tools and materials to painting techniques. The book's main appeal will probably be to modellers interested in the subject but not sure of where to start, and as such can be recommended.

### Naval

**American Destroyer Escorts of World War 2**, by Peter Elliott. Almark Publications, 49 Malden Way, New Malden, Surrey. **Price £1.50.**

ALTHOUGH PRIMARILY a picture book, full of excellently reproduced photographs, this is an interesting account of the hundreds of 'DE's built during the Second World War, of which 78 served with the Royal Navy under the designation 'Captain' Class.

Separate chapters cover the initial design of the DE class, their wartime service with the American navy, with the Royal Navy, and transfers to other nations. The short text is amply supported by production tables, charts showing losses, and several pages of appendices giving ships' names, numbers, dates built and dates converted, transferred, scrapped or lost. Finally, there are half a dozen pages of scale drawings of different versions, and a section detailing DE armament (including scale drawings of the various guns carried).

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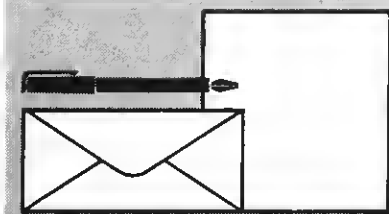
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## Letters to the editor

### Query answered

IN ANSWER TO the question posed by the photograph on page 58 of *Airfix Magazine Annual 4*, the gun is a British 13 pdr mounted on a Thornycroft 3-ton J type lorry. The 13 pdr was an anti-aircraft weapon with an elevation of +80°, a traverse of 360°, a muzzle velocity of 1,700fps, rate of fire of six to ten rounds per minute, vertical range of 13,000 feet and a horizontal range of 8,200 yards. The total weight of the gun was 2,150 lb.

Alexander Bruce, Newtyle, Angus.

### Model soldiers

THE NATIONAL Army Museum, Royal Hospital Road, London SW3, is currently showing

### Your queries answered

IN ORDER TO help prevent delays and confusion, will all readers intending to write to *Airfix Magazine* please note the following information and post their letters to the appropriate address.

Any query, comment, suggestion or contribution for *Airfix Magazine* should be sent to: The Editor, *Airfix Magazine*, PSL Publications Ltd, Bar Hill, Cambridge CB3 8EL.

Any query, comment or suggestion regarding Airfix kits or games should be sent to: Airfix Products Ltd, Malden Place, Garrett Lane, London SW18 4NB.

All queries or payments for *Airfix Magazine* subscriptions and back numbers should be sent to: Subscription Department, *Airfix Magazine*, Surridge Dawson & Co (Productions) Ltd, 136/142 New Kent Road, London SE1.

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Enquiries regarding *Airfix*/PSL books should be addressed to the Sales Department, Patrick Stephens Ltd, Bar Hill, Cambridge CB3 8EL.

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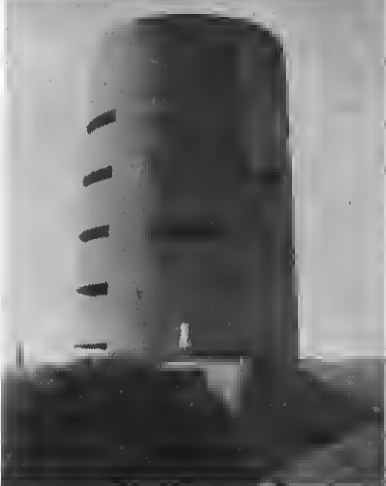
part of its collection of model soldiers in the entrance hall, and is well worth a visit. The figures include several 18th Century flat, half-round and solid models, early Britain's hollow-cast soldiers and many more, together with an interesting selection of modern slate, metal and rubber moulds for casting figures. Ed.

### NZ modellers

A NEW MILITARY modelling and wargaming club has been formed in Papakura, New Zealand. Anyone interested in joining should contact Mr M. Harrison, C/- Petherbridge, Beach Road, RD1, Papakura, NZ.

### MAFVA meeting

THE LONDON Group of the Miniature Armoured Fighting Vehicle Association has asked us to correct an error we made in the announcement about its Open Modelling Competition on April 5 (December issue). The competition is open to members of relevant modelling societies, but not to the general public. Ed.



### Contributions

Letters to the editor selected for publication entitle the senders to each receive a free Airfix plastic construction kit, and the publication of photographs from readers is similarly rewarded. Airfix Products Ltd award the kits on the following scale:

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Letters to the editor should be addressed to: the Editor, *Airfix Magazine*, Bar Hill, Cambridge, CB3 8EL. If a reply is wanted, a stamped addressed envelope (or International Reply Coupon) should be enclosed. All photographs submitted for consideration should be clearly labelled with the sender's name and address on the back of each.

Opinions expressed by correspondents on this page are their own and do not necessarily reflect the views of the Editor or Airfix Products Ltd.

### German fortifications

TERRY GANDER and Chris Foss's article on the surviving German fortifications in Jersey in our January issue created a great deal of interest and prompted reader R. Hopwood to submit the three photos below of similar fortifications in Guernsey. Below left is Jerbourg Point, bottom left Pleinmont Tower and below Vale Mill, Moulin.



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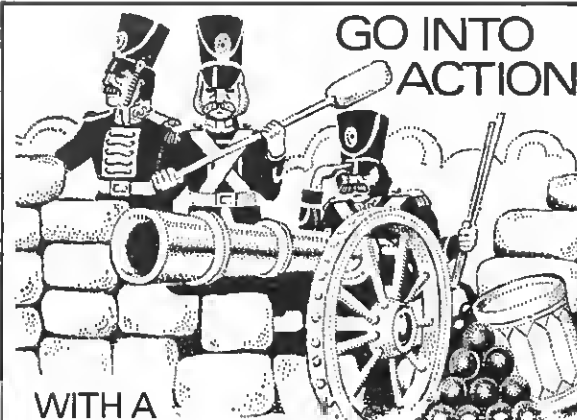
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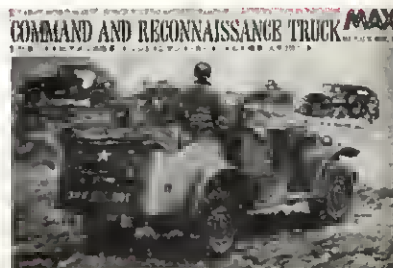
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